

# TOPICS



## Caught between low interest rates and the risk of inflation

Employers' liability  
**Creating  
transparency**

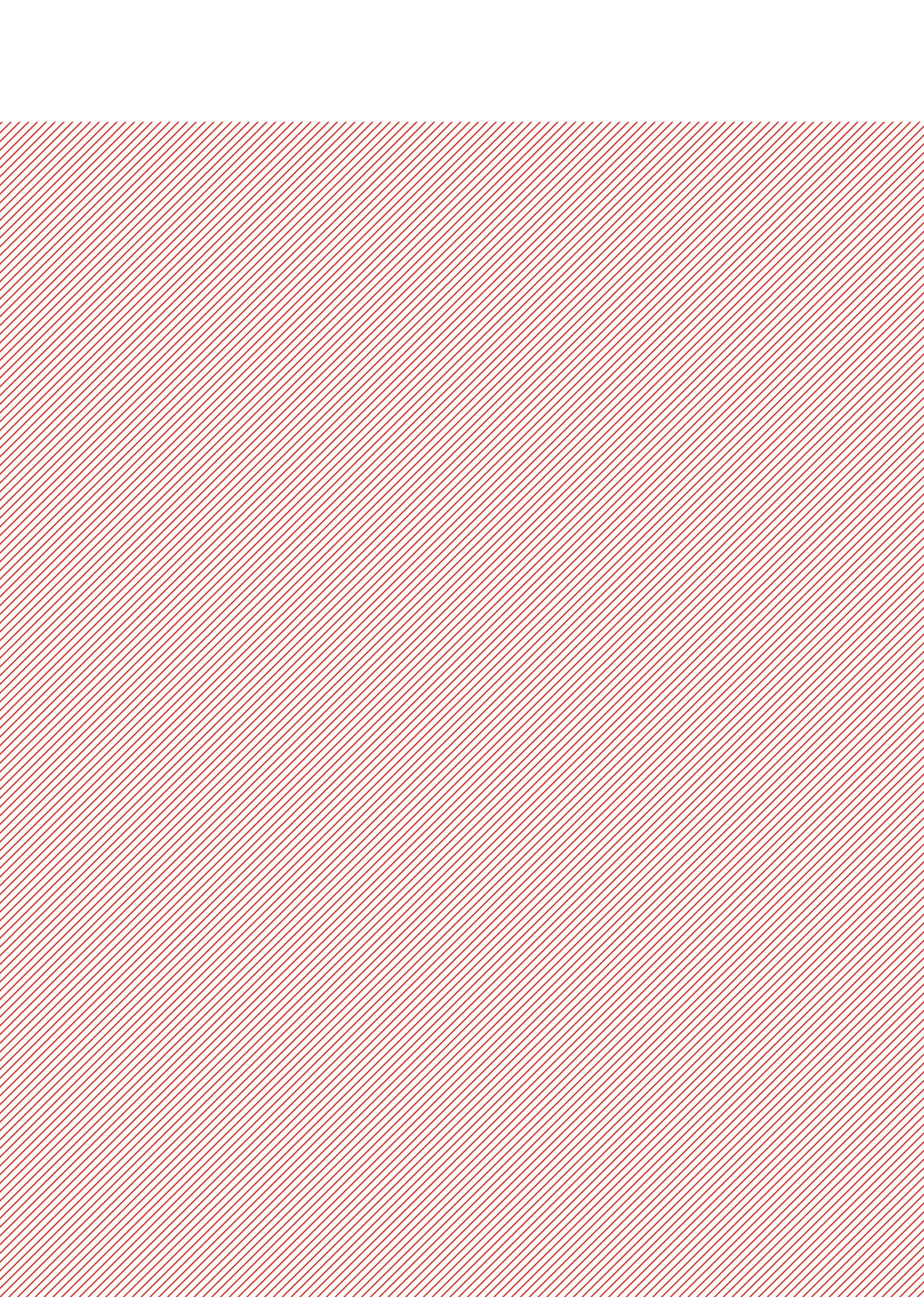


FinMoRe  
**More than  
reinsurance**



Aviation  
**Safety in the face of  
nature's uncertainties**





# EDITORIAL

Dear Reader,

Is there no end to the turmoil in the financial world? Just as it seems that most countries have recovered from the crisis on the financial markets, now it is the currencies which are coming under pressure. High levels of debt are driving the refinancing costs of some countries to exorbitant heights. Central banks are attempting to counter the risk of speculation by injecting the markets with unprecedented amounts of liquidity. At the same time, interest rates are as low as they have ever been.

All of these factors are of major significance for the insurance industry. Low interest rates are already making a mockery of some overly optimistic pricing calculations. On the other hand, there is also the risk of inflation to consider, which could produce some nasty shocks in the event of major claims. For me, there is no doubt whatsoever that the risk business has become a lot more complicated. For insurers, it is important to keep a close eye on both these scenarios and to check whether all options have been given sufficient consideration.

These are just some of the subjects dealt with in this issue of Topics. I hope you find it interesting, with plenty of information that will be of practical use in your work. And if you have any questions about the articles, simply contact the authors or talk to your client manager.

Munich, March 2011



Dr. Torsten Jeworrek  
Member of the Munich Re Board of Management and  
Chairman of the Reinsurance Committee



**NOT IF, BUT HOW**

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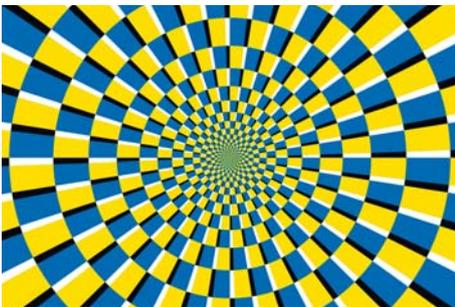


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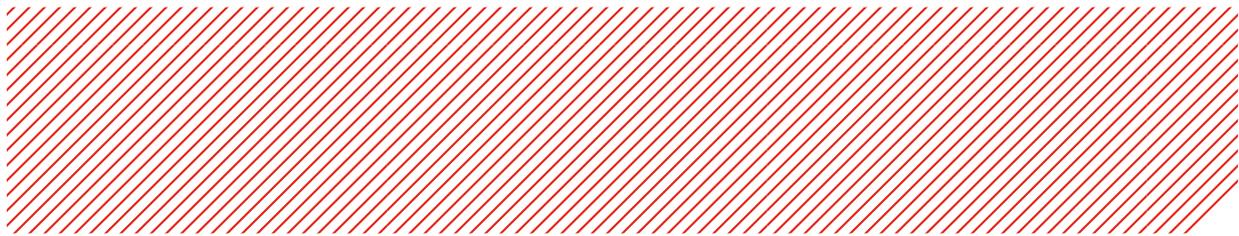
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Our claim "Not if, but how" promises innovative solutions. To achieve this, it is sometimes necessary to take a slightly unconventional approach. The Open Mind exhibition stimulates people to think laterally.



What will money be worth in the future?  
The answer to this question will depend on  
how inflation develops, which is of huge  
relevance to insurers.

# Caught between low interest rates and the risk of inflation



The global economy is facing an increasing number of potential new threats to its well-being. In particular, the development of interest rates and inflation is something that we need to keep a close eye on. Insurers will also have to prepare for these threats and ensure they have adequate pricing policies.

Dr. Michael Menhart and  
Sonja Beckmann

The development of the economy is marked by substantial imponderables, even some two-and-a-half years after the escalation of the financial crisis. Although the economies of the industrial world have largely weathered the 2009 recession, surprisingly well in some cases, the after-effects of the crisis such as continued high unemployment in the USA and the euro crisis present huge uncertainties regarding the future economic outlook. This uncertainty not only concerns economic growth but above all the development of price levels and inflation.

The US Federal Reserve in particular has undertaken massive monetary measures in an attempt to prevent the US economy from sliding back into recession and resulting deflation. In Europe, the possibility of a Japan scenario, in other words recession accompanied by a sustained period of low interest rates, has been the subject of lengthy debates and discussions.

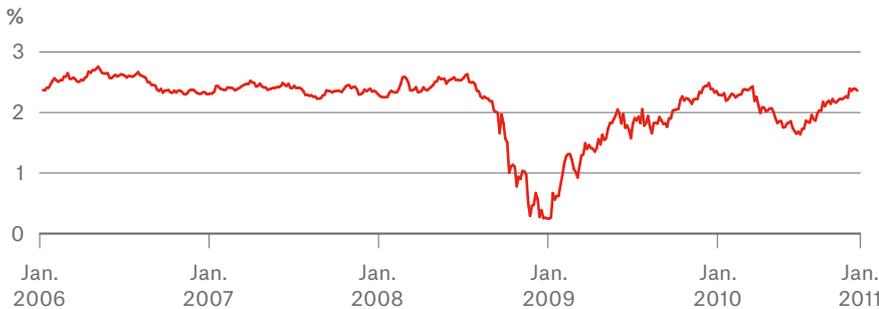
At the same time, especially the expansive monetary policy conducted by central banks and rising levels of public debt from government measures to combat the economic crisis have raised fresh fears of a major increase in inflation. Although the general consensus recently has been that a massive increase in inflation is unlikely in Europe and the USA (see Fig. 1), there are fears within the insurance industry that one of these two scenarios could in fact materialise.

**Here are some definitions of terms to clarify what we are talking about**

Inflation is a sustained rise in price levels. It usually refers to consumer-price inflation. For example, average consumer-price inflation in Germany over the last 25 years has been about 2%; for 2009 0.4% and 2010 1.1%. Higher inflation levels of 5% to 7% were last seen in Germany back in the 1970s and in the early 1980s (see Fig. 2).

However, increased inflation is not automatically hyperinflation. Even though there is no standard definition of what constitutes hyperinflation, some sources put the figure at about 50% a month, i.e. an annual inflation rate of some 13,000%.

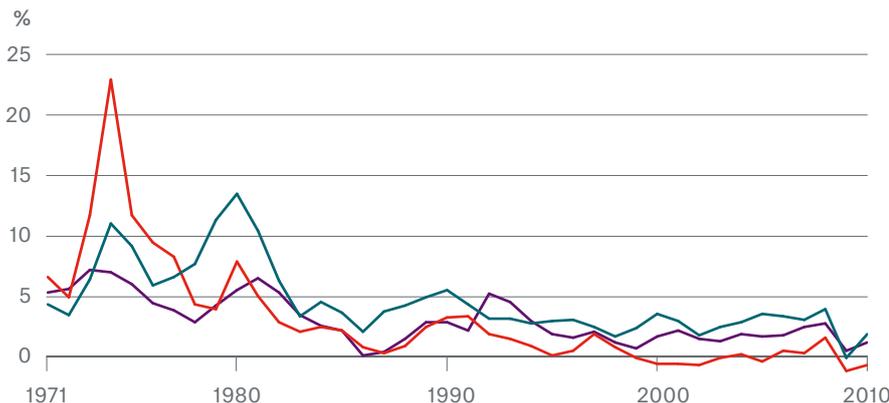
**Fig. 1:**  
Difference in the yield on ten-year US government bonds compared with ten-year inflation-indexed US government bonds



With the slump in the real economy in 2008, expectations of inflation also fell. They rose again with the 2009 recovery. Currently, inflation is expected to remain moderate.

Source: Bloomberg, 31.12.2010, Munich Re Economic Research

**Fig. 2:**  
Consumer-price inflation for Japan, Germany and USA



Prolonged periods of high inflation were last seen in Germany and the USA in the mid-1970s and in the late 1980s during the two oil crises. Japan has been in a deflationary phase since the late 1990s.

Source: IHS Global Insight, Munich Re Economic Research

— USA  
— Germany  
— Japan

Hyperinflation has been a fairly rare occurrence in history and is usually connected with phases of massive economic, social or political turmoil.

The term deflation describes a sustained fall in price levels. Deflationary phases are usually accompanied by low interest rates. For example, Japan has been experiencing deflation since the late 1990s. During this period, the Bank of Japan has kept its key interest rate at below 0.5%.

This “economic inflation” has to be distinguished from “claims inflation”, which is broader and includes both economic inflation and increases in claims costs from “superimposed inflation”. This can impact liability losses, for example if medical or care costs become more expensive due to technological advances or improved methods of treatment. In this text we will be focusing on economic inflation and the effects it can have.

Increased inflation or deflation can impact insurance companies in a variety of ways: claims expenditure, administration costs, reserves, demand for insurance products, and investments. The effects can differ significantly from segment to segment.

Generally speaking, changes in interest rates can have an impact because they change the value of investments. Deflation can increase the fair value, as it is usually accompanied by low interest rates, which in turn can increase equity capital or profits (vice versa in the case of inflation).

**Effects on property-casualty insurance**

Increased inflation can have a significant impact on property-casualty business, primarily because claims expenditure and administration costs rise and reserves are therefore pitched too low. For future business, this development can be countered with premium adjustments, if market conditions allow.

There may, however, be a need for additional reserving of the technical provisions if the actual rate of claims inflation is different from the rate on which the reserves were based. Fig. 3 shows a simulation of a property-casualty portfolio with an average duration of 3.5 years. For lines with an even longer run-off period (e.g. general liability, medical malpractice, workers’ compensation), unexpectedly higher inflation presents an even greater challenge due to the associated need for additional reserving.

Investments can help counter the effects of higher-than-expected inflation. Although higher economic inflation normally increases returns on investments (especially because interest rates on fixed-interest securities also rise), the effect is minimal as the higher interest rates only concern new investments and not existing ones. Investing in inflation-indexed bonds offers a viable alternative. Given the require-

**Fig. 3:**  
**Effects on the loss reserves of underestimating/overestimating claims inflation**  
 (all figures as a percentage)

Expected inflation	Actual inflation							
	0	1	2	3	4	5	6	7
0	0	4	8	12	16	20	25	30
1	-3	0	4	7	11	16	20	25
2	-7	-3	0	4	7	11	16	20
3	-10	-7	-3	0	4	7	11	15
4	-12	-9	-6	-3	0	4	7	11
5	-15	-12	-9	-6	-3	0	3	7
6	-17	-15	-12	-9	-6	-3	0	3
7	-19	-17	-15	-12	-9	-6	-3	0

Simulation of the effect on the loss reserves of underestimating claims inflation: For example, under-reserving is 1.1% if inflation is expected to be 4% and is actually 7%.

Source: citigroup, Inflation: Too Risky To Ignore, 7.5.2009

ments of sufficient availability in the respective currency zone and the desired time to maturity, it is possible, in principle, to counter the negative effects of increased economic inflation. In practice, however, there is a significant problem involved: unexpected developments in claims inflation are only partially attributable to surprise increases in economic inflation, as the other factors contributing to claims inflation mentioned above also play an important role.

Deflation tends to have a beneficial effect for property-casualty insurers: claims expenditure and administration costs are lower, the reserves are pitched too high. However, it can also have a negative impact. For example, the weak economic environment that deflation usually brings can increase claims expenditure in some lines (e.g. in credit insurance due to the rising number of insolvencies) and can also dampen demand for insurance.

In addition, income from new investments may be reduced as interest rates tend to come down during periods of deflation.

### Effects on life insurance

Life insurance benefits are usually stipulated as a fixed amount (fixed-benefit insurance). Some life insurances may also provide minimum guaranteed rates of return. There are therefore specific effects resulting from increased inflation or deflation on the results and stability of insurance companies.

Deflation is a particular problem for insurers that primarily sell traditional lump-sum life insurance with guaranteed returns, as the reduction in investment income that usually accompanies deflation makes it more difficult to achieve this guaranteed return. In fact, a sustained period of low interest rates can lead to an interest gap. In other words, the interest that insurers are able to earn from investments falls below the average guaranteed interest rate of the insurance portfolio.

Even if the guaranteed interest were still achievable in the long term, surplus sharing would have to be successively reduced in a low-interest environment.



## “Clever hedging strategies are not enough”

The insurance industry should adapt its pricing to the prevailing economic conditions, says Dr. Ludger Arnoldussen, Munich Re Board member responsible for Germany, Asia Pacific and Africa.



**Topics: We currently find ourselves in an unusual situation. Despite historically low interest rates, there are still fears of inflation. What does this mean for the insurance industry?**

Dr. Arnoldussen: Most importantly, the prevailing low interest rates mean that one source of income is a lot less lucrative than it was in the past. And this highly important source of earnings is thus missing from insurers' income statements.

**Where is this most keenly felt?**

Primarily in life insurance. A lot of life products offer minimum returns which are becoming harder and harder to achieve with the current low interest rates.

This is exerting substantial pressure on life insurers' business models as we know them in Germany, for example.

**Can life insurers still guarantee a return over a period of 30 years?**

Perhaps actuaries can. As an economist, I have my doubts. The only chance in the current business model is clear asset-liability management (ALM) that pursues the objective of guaranteed minimum interest as its utmost priority. There is no potential for creating safety margins. You can only honestly offer clients what can be achieved taking account of risk capital costs.

Product designers need to develop attractive and profitable new concepts. As reinsurers, we have already long supported our cedants in this respect.

**As regards deflation, one inevitably thinks of the Japan scenario. You know the market from years of experience – what can we learn from the Japan situation?**

Primarily, that we should not try to ignore or trivialise the problem. Life insurers there suffered most from the sustained period of low interest rates and some foundered on the same products as life insurers in Germany. Many companies' business development was stopped in its tracks for a good number of years. The situation

If clients do not appreciate the value of the guarantee, the lapse rate in the portfolio could increase. One positive aspect for an insurer in such a scenario is that its guarantees vis-à-vis clients would be reduced. However, there is a risk in countries which are obliged by law to offer clients participation in the valuation reserves, which are substantial for fixed-interest investments in a time of low interest rates. In this scenario, the company's risk-bearing ability would be severely hampered by the high lapse rate resulting from the release of the investment reserves.

Falling guaranteed interest and lower surplus sharing reduce customers' willingness to tie themselves to contracts for a long period. In principle, life insurers'

premium income could come under pressure due to the uncertainty and poor economic dynamics that accompany deflation. However, deflation does tend to result in a decrease in costs. Deflationary scenarios can pose a significant challenge to life insurers. For example, a number of life insurers in Japan fell victim to insolvency in the late 1990s. In the case of unit-linked products, on the other hand, the client bears the investment risk and there are no such critical effects on life insurers.

In the case of increased inflation, the negative effect of deflation is reversed. As interest rates usually rise, it is easier to achieve the minimum guaranteed interest rate for conventional life insurance. Moreover, the

in non-life was somewhat less dramatic, as companies were able to react to the situation with their pricing.

**Does that mean that non-life insurers in other regions can take comfort from this?**

No, not really. The low interest rates are making their presence felt there as well, especially in lines with long run-off periods. Many primary insurers' tariffs assume interest earnings which are no longer achievable. They have to take another look at these products and work out on the basis of current interest rates just what needs to be done on the technical side. It is also necessary to give due consideration to inflation because it can make losses so much more costly than originally expected. Also, economic inflation is not always the same as claims inflation, which depends on other factors as well. Even if ALM did manage to hedge the effects of economic inflation, the actual claims inflation could be much higher.

**What do insurers need to do?**

The insurance industry has become accustomed to a situation where investment income has traditionally hovered around a certain level. However, the dramatic changes on the capital markets, the rapid fluctuations in share prices, the sustained period of low interest rates and the massive intervention by central banks, whose medium- to long-term effects we cannot possibly gauge at this time, would certainly deter me from taking unnecessary risks if I were at the helm of an insurance company. On the contrary, I would precisely match my liabilities to the structure of my investments as quickly as possible. This is the only way to keep the ship on course in these stormy waters.

**So, is hedging or clever asset-liability management the best way?**

That alone will not be enough. It is important that the insurance industry takes account of these risks such as sudden inflation or the risk of change on the claims side of things by applying appropriate safety loadings. Lines of business whose results are strongly influenced by interest rates and inflation are much less attractive for insurers in the current environment.

**Are the risks already being given sufficient consideration?**

Not so far, no. I think everybody knows what we need to do. However, in the intense competition and fight for market shares people tend to lose sight of what needs to be done. The effects of low interest rates on balance sheets and income statements are probably not yet painful enough or not yet entirely obvious. People are hoping that things will settle down of their own accord. But of course it would be far better to see things as they really are and take appropriate action. However, I for one cannot detect such an attitude as yet.

**What should companies do in general to cope with the uncertain situation?**

They should not base their actions on the likely outcome but rather think in terms of possible scenarios in order to cope with any eventuality. It is also necessary to maintain a flexible investment policy and to reassess past assumptions.

**Dr. Arnoldussen, thank you for this interview.**

real costs of the liabilities fall because the insurance benefits are fixed nominal amounts.

On the other hand, classic products become less attractive for clients compared with alternative forms of investment, as the real value of the agreed future nominal benefit falls and guaranteed interest or surplus sharing is not immediately adjusted to the increasing nominal interest rate. Therefore, with increased inflation there is likely to be a rise in the lapse rates of existing business and negative consequences for new business. This effect does not occur with unit-linked products. However, generally speaking, increased inflation has a negative impact on life insurers in all product categories in the form of rising administration costs.

### Conclusion

Both increased inflation and deflation can present huge challenges to the insurance industry. A significant increase in inflation would have major consequences for property-casualty insurers in particular due to the potential need for additional reserving. A period of deflation with sustained low interest rates would primarily affect life insurers with a high proportion of traditional products offering guaranteed returns.

Despite all the discussions surrounding fears of inflation or deflation, it is important to emphasise that these are only risk scenarios. Currently, inflation is expected to remain moderate – at least in the major industrialised countries – at about the average level before the economic crisis.

We do not expect any significant changes in the foreseeable future. At the same time, however, we do expect economic development to remain volatile. In the medium to long term, however, deflation accompanied by a sustained period of low interest or a significant increase in inflation rates cannot be ruled out entirely. All insurance companies should therefore concern themselves with these risk scenarios.

Of course, it is not just the scenarios described here that are of relevance. For example, deflation is not an absolute prerequisite for low interest rates. This can be seen in the current economic conditions where fears of inflation and low interest rates go hand in hand. This is a particular challenge for insurers. They therefore have to carefully consider a number of factors in their premium calculations and ensure risk-adequate prices and conditions despite the competitive pressure and market cycle. This is especially true of property-casualty insurance. An environment of low capital market yields makes adequate technical returns all the more important.



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## “Diversification is the magic word”

Dr. Jürgen Callies, head of MEAG Research, talks about insurers’ investment policies caught between inflationary fears and worries about deflation.

**Topics: Low interest rates and the risk of a Japan scenario. At the same time, high public debt is fuelling fears of inflation. What is your take on the current interest rate situation?**

Callies: Burgeoning public debt and uncertainty regarding just how strongly monetary policy will be committed to monetary stability are weighing on the price of government bonds on the one hand. On the other hand, in the western industrialised countries, capacity utilisation is too low and unemployment rates too high for us to be concerned about a significant rise in inflation in 2011. The risk of a Japan scenario may not be altogether banished but it has faded into the background since we successfully weathered the economic crisis. But I expect both scenarios to be with us for some years to come.

**How are central banks reacting to this dilemma?**

The central banks in the industrialised west have only marginally tightened monetary policy due to global uncertainties. Moderate inflation means we can expect only a modest increase in the interest on long-maturity government bonds. In Europe, interest rate movements are not being driven by the issue of inflation or deflation but by the euro crisis and its resolution measures.

**What effects could these two scenarios have on investment returns and thus on insurers’ earnings?**

What counts here is the time frame involved. For the next year or so, an increase in inflation accompanied by rising interest rates would indeed see total income fall but interest-bearing assets could then be reinvested at higher yield levels. The opposite is true of deflation. In the longer term, bonds will always be repaid at their face value regardless of inflation or deflation, provided there is no default. With risky assets, it is the cause of inflation or deflation that is important.

**What can asset managers do?**

Asset management should always be flexible enough to protect its clients against the risks of different inflationary phases via inflation-indexed bonds, commodity investments or selective equity investments. Deflation, on the other hand, can pose a real threat.

It not only erodes investment income but can also lead to a prolonged economic slump due to stronger deleveraging, thus producing the above-mentioned Japan scenario.

**How can insurers handle these risks in their investments?**

Diversification is the magic word here. Currently, political decisions are playing a key role. At the same time, we are also seeing greater divergence between industrial countries and emerging markets. We should uphold the tried and trusted principle of investment: diversification, diversification in asset classes and regions. It is an illusion to believe that only government bonds can protect you. Investments must give greater emphasis than before to the diversification potential of new strong-growth regions in the emerging markets. Besides diversification, liquidity – and this is a lesson from the last crisis – is of tremendous significance. Highly liquid investments permit rapid reaction to a change in conditions and greater protection against risks.

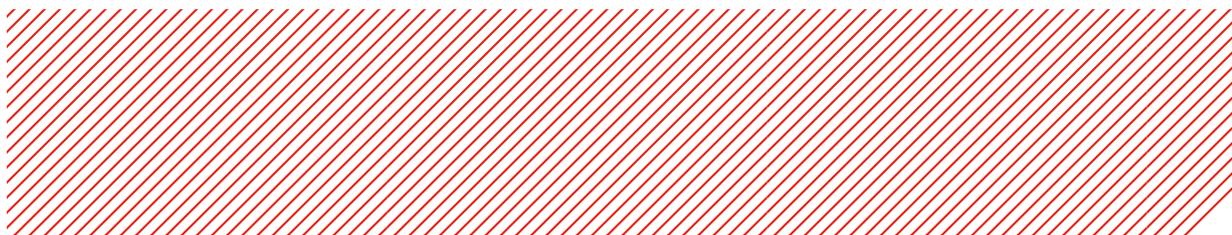


Dr. Jürgen Callies has more than 20 years’ experience in capital market business. He has been head of MEAG Research since 2002.  
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The 33 Chilean miners trapped in their workplace were rescued from their 700-metre-deep refuge after 70 days in October 2010, an impressive example of national solidarity.

# Creating transparency



Today's industrial revolution is taking place in the emerging markets. But it is not only these countries that are concerned with the interaction between general social security and workers' compensation, employers' liability and third-party liability.

Christian Lahnstein

Mining accidents are not uncommon, and even less so in times of booming commodity prices: the rescue operation in Chile was simply spectacular enough to attract lasting worldwide attention. It shone a light on the coexistence of modern technology and precarious working conditions.

### Wide range of liability systems and insurance solutions

In the case of occupational accidents and diseases, the liability system has been superseded to varying extents by the no-fault models of workers' compensation insurance. Each national legal system defines in its own way the extent of residual liability to be borne by the employer, i.e. to what extent the employer remains exposed to claims for damages from employees in addition to or in lieu of workers' compensation benefits, and to subrogation by workers' compensation insurers or third parties. Even among the EU states, there is a wide variety of solutions and as yet no sign of any harmonisation.

- In some countries, employee claims for damages are restricted to cases involving intent (USA, Canada, Mexico, Germany, Austria, Belgium), in others gross negligence can suffice (in France, where the term *faute inexcusable* has proved to be open to interpretation). In most states, employees can assert claims in cases of ordinary negligence on the part of the employer, such as in most southern and western European countries, ex-socialist states and developing countries.
- Subrogation by workers' compensation insurers involves even more variations, as differences are often made between disability, health and workers' compensation insurance carriers: in some countries subrogation is largely ruled out (the Netherlands, Denmark), in others it is admissible in cases of gross negligence (Germany, Switzerland, Austria, Japan), and elsewhere it is possible in cases of ordinary negligence, without limitation, as in Italy, or limited by "caps" as in the British National Health Service (for the time being). Often, subrogation rights exist that are not enforced in practice, but the pressure to do so may well increase, for example in accordance with Section 76 of the German Social Security Code IV, which states that "Claims are to be made in time and in their entirety".
- Independent of the types of liability outlined above, there is also a variety of traditional insurance solutions. In many common law countries, employers' liability insurance is combined with workers' compensation (India, Hong Kong, Singapore, in Australia alone there are nine different models that are frequently being modified). In some countries, employers' liability is a separate branch of insurance; compulsory, as in Great Britain or not compulsory,



Women working at a shoe factory in Chengdu. Even in China, people are calling for better working conditions.

sory, as in Ireland. In most markets, it is explicitly or tacitly covered within general liability insurance, though here the triggers and aggregation issues critical to occupational diseases are not defined in detail.

What applies in the case of the Chilean mining accident? Under Chilean law, the employer is liable in the event of ordinary negligence. This liability is covered by general liability insurance, but in this case, however, the company did not have such a policy. The interesting point is that even rescue actions like this one are covered by liability insurance. So liability insurers should not overlook the possibility of large-scale rescue operations, even if the policyholder is a smaller company. This may even apply where employers' liability has been largely replaced by workers' compensation insurance, as its benefits do not include rescue costs.

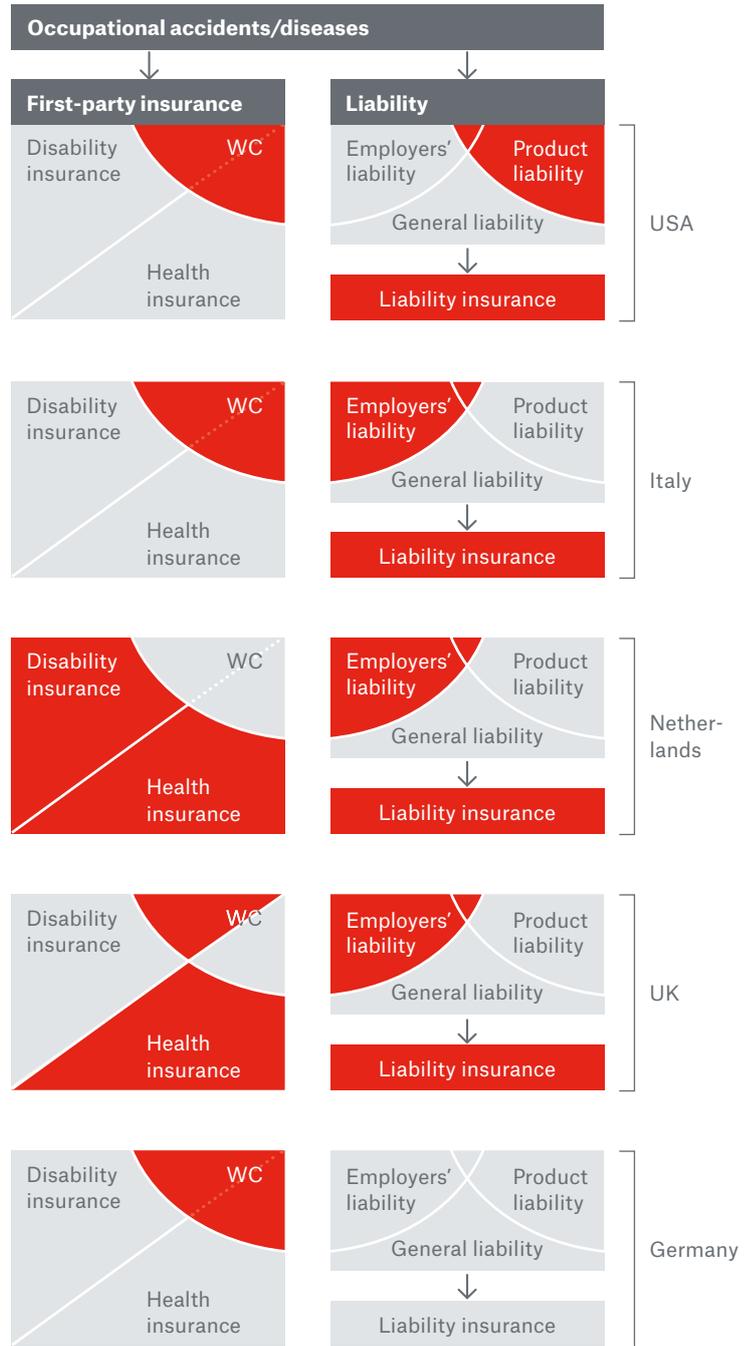
**The US paradox**

"... workers' compensation - the first tort reform - has been unable to escape tort entirely. Employees' search for a source of full recovery has led them beyond workers' compensation and back into tort. And neither tort nor workers' compensation has been able to muster the means to return to the exclusive-remedy structure originally envisioned by workers' compensation, or to devise a relationship among workers' compensation, tort, and insurance that harmonises their operations. Until this occurs, workers' compensation is unlikely to be completely faithful to its original promise." (Tort and insurance lawyer Kenneth Abraham in "The Liability Century", 2008)

The tort reform that Abraham refers to is not only the first, but to this day the only significant tort reform in the USA. It took place in two phases. The workers' compensation legislation was introduced a hundred years ago following in the footsteps of Germany's (Bismarck) model, and put an end to the first US liability crisis in connection with industrial accidents, largely replacing tort law with workers' compensation. The inclusion of occupational diseases in workers' compensation in the 1930s took care of the second US liability crisis in a similar fashion, this time in the context of mass silica lawsuits and the first asbestos cases. Then, the liability risks pertaining to occupational accidents and diseases were more or less systematically shifted to product liability - against the explicit intention of the workers' compensation legislation.

When thinking about new technologies as emerging risks on the US market - such as nanotechnology or new toxic torts - one has to remember that health damage can often be proven by means of well-documented exposure in the workplace. When modelling scenarios of this kind, it is of decisive importance whether US workers' compensation will actually fulfil its prevention, monitoring and compensation responsibilities in the future, unlike in the silica and asbestos cases to date, or if the problem will once again be left to tort lawyers. As Abraham suggests, better coordination of workers' compensation, tort law and liability insurance would allow better long-term assessment of both lines of business.

**Fig.1: Different compensation systems**



The left-hand side illustrates the roles of general disability and health insurance and specific workers' compensation insurance when compensating occupational accidents and diseases. The branches of insurance most affected are highlighted in red. The right-hand side shows the main liabilities.

## European developments

In **Great Britain**, employers' liability (EL) is the largest segment within general liability insurance, with a premium volume of around £1.5bn. Even lawyers and insurers in other countries are keeping an interested eye on the current and much-discussed litigation relating to liability, damages and insurance contracts there. These are about fundamental problems with regard to occupational diseases: proof of causality, dealing with employees who have been exposed in the past but who have not (yet) fallen ill, and the trigger definition.

The mandatory British EL insurance is a notorious loss-maker. The long-term costs of the asbestos-mesothelioma cases are estimated to be up to £10bn. At the same time, it is noteworthy that employers in the UK are burdened much less by the costs of occupational accidents and diseases than their counterparts in continental Europe or North America. The costs of mandatory EL insurance average out at 0.25% of a company's payroll. The insurance benefits from workers' compensation – the Industrial Injury Scheme and National Health – are financed through taxes, and the benefits provided are not to be scoffed at (see the statement by *Richard Lewis*).

## Current aspects on European markets

Four experts from the European Centre of Tort and Insurance Law look into the special aspects of this field in their respective countries.



Whether this dual system of benefits which privileges workers over other accident victims can be justified is open to question, but it forms the foundation of both the tort and welfare systems.

**Richard Lewis**, University of Cardiff

### Great Britain: The overlooked role of social security

Tort claims for work-related injuries in the UK have fallen to 87,000 a year and now constitute only 10% of the total brought. The average award of damages is the equivalent of three months' wages and, typically an employer pays about 0.25% of the payroll to cover the insurance premium. However, many are unaware of the extent that compensation for industrial injury is also provided by the state. Funded wholly by the taxpayer, the pension payments are comparable to damages paid for non-pecuniary loss, and their long-term value ought not to be underrated. There are four times as many injured workers receiving these payments than there are recipients of damages, and the system is administered at a fraction of the cost.



### France: Courts enable the return of employers' liability

The French compensation mechanism for occupational accidents and diseases is characterised by the fact that the social insurance carriers pay the costs of medical treatment, loss of earnings and any long-term inability to work. In return, the injured party and claimants cannot take legal action against the employer to hold

it responsible on the basis of tort law, unless in the case of intent or grossest negligence (*faute inexcusable*).

The French Supreme Court has extended the definition of *faute inexcusable* since 2002 by deciding that the employer has an obligation to provide safety, which is deemed not to be upheld if the employer was aware or should have been aware of a risk and did nothing to protect its employees from it. This decision was formulated with a view to the asbestos risk, but it applies to all kinds of accidents and diseases, even suicides that are not committed at the workplace. Because of this new interpretation of *faute inexcusable*, injured parties can often receive additional compensation, which means that the compensation for workplace-related accidents and diseases approaches the guaranteed unlimited compensation under tort law.

**Florence G'sell**, Université Paris 1

In other countries, the employers foot the bill for workers' compensation insurance. The average costs here lie between 1% and 3.5% of the payroll. They depend on the scope of the benefits offered, the prices on the health market, the frequency and severity of claims and the costs of administration. This considered, it would not be overzealous to require employers in Great Britain – who enjoy a privileged position compared to other countries – to pay EL insurance premiums that cover the costs.

In the **Netherlands**, too, a significant share of liability-related litigation concerns employers' liability. Workers' compensation was done away with in 1967 and integrated into the general health and pension insurance system. The idea was that the often artificial and difficult differentiation between occupational and non-occupational accidents and diseases should be overcome in the modern social-welfare state: "same injury, same need, same benefit". Since then, however, the social security benefit level has fallen, even below the minimum level demanded by the ILO for workers' compensation. Attempts by liability insurers to turn employers' liability back into a first-party insurance – as was the case before 1967 – failed due to a lack



**Netherlands:  
Case law based duties to organize  
first party insurance**

Dutch employers' liability is based on fault, but the Hoge Raad (highest court) has over the past years accepted an additional duty for the employer to provide adequate first-party insurance for traffic accidents that employees may suffer in the course of their work. Thus, the Hoge Raad in fact introduced a type of no-fault liability/compulsory insurance within a fault-based model.

The most interesting point of debate under present Dutch employers' liability law is what the implications of this duty to provide insurance coverage are for classic work-related accidents which cannot be attributed to fault: can it be justified that employees in traffic accidents are

financially better protected than employees who suffer from an accident in the course of their actual work?

**Siewert D. Lindenberg**, Erasmus Universiteit Rotterdam



**Italy:  
Two surprising decisions**

In the case of damage caused by asbestos dust, any organisation representing workers' interests can claim compensation for non-pecuniary damage directly from the employer, even if the organisation did not exist at the time the damage occurred. This was the decision of the appeal court dated 4 November 2010, by which groups representing employee interests that act

as joint plaintiffs are acting *iure proprio*, in the capacity of an injured party. Their authority to conduct a lawsuit is thus recognised, even if they are not a legal entity. In the opinion of the appellate court, "any behaviour on the part of the employer that endangers the health of the employees, in particular if the behaviour occurs repeatedly and is based on a systematic and deeply rooted breach of safety and hygiene regulations, represents direct damage to the party representing the interests."

On 22 December 2009, a social court recognised the use of a mobile telephone as the cause of an occupational disease for the first time: according to the Brescia appellate court, prolonged use of such a phone can cause a brain tumour. In doing so, the judges agreed with the workers' compensation claim of a former management employee of a multinational company. He suffered from a benign tumour on the trigeminal nerve after speaking on the mobile phone for several hours a day over a period of twelve years. The opinions of two experts in this field were the decisive factors for the decision.

**Alessandro Scarso**, Università Bocconi, Milan

of support from the legislator. Instead, the courts brought about a curious first-party partial coverage ruling pertaining to employee traffic accidents. (see the statement by *Siewert D. Lindenbergh*).

In **France**, the courts changed the relationship between workers' compensation and employers' liability fundamentally by extending the grossest negligence (*faute inexcusable*) prerequisite for liability that had long been interpreted in a restricted way (see the statement by *Florence G'sell*). In doing so, they were reacting to criticism from social security law experts, who pointed out that employees who were originally privileged by workers' compensation insurance were not allowed to benefit from the now further-developed tort law compensation. Liability insurers have so far failed to develop their own coverage concept for the extended liability.

**Italy** is an example of the traditional coexistence of two systems that have developed continuously and innovatively. Its workers' compensation scheme (INAIL) has continued to grow its range of responsibilities (new rehabilitation tasks, the inclusion of all households, coverage of non-pecuniary losses). At the same time, employers' liability is becoming more significant, not least of all because of the asbestos cases such as the mass litigation suit against Eternit for €5bn (see the statement by *Alessandro Scarso*).

## Occupational safety and the protection of the environment, consumers and victims of catastrophes

From Spanish colonial law to Deepwater Horizon: scandals, liability and insurance systems

Scandals about unacceptable working conditions have accompanied global economic relations from the very beginning: severe criticism by Dominican monks in the Spanish colonies in the early 16th century and the British recording instances of poor working conditions on rubber plantations in the Congo and Peru a hundred years ago. Even today, the efforts of NGOs and the International Labour Organization (ILO) repeatedly threaten to founder on the realities of the issue. Mass lawsuits by South African miners and workers on Latin American banana plantations against international companies are developing into a chess game of multinational liability litigation whose outcome remains difficult to predict.

In these lawsuits, the aspects of safety at the workplace are often linked to environmental scandals (more on this subject in Topics 2/2010). The close relationship between these two aspects is evident both in the case of accidents and exposure to hazardous substances. In the case of the Deepwater Horizon drilling platform disaster in the Gulf of Mexico, with its eleven deaths, the focus is on environmental damage. In the Piper Alpha accident in the North Sea in 1988, there were 167 fatalities among the crew. This was the largest industrial accident in the post-war period for British employers' liability insurance.

Occupational medicine is also useful when assessing new risks to consumers. For example, fears arising from the risks of electromagnetic fields, in recent times largely seen

in the context of mobile telephones, have been allayed, among other things by the results gained through occupational medical research; consequently, not even the recent judgement by the Italian social security court should have a major impact (see the statement by *Alessandro Scarso*).

And finally, the exposure of workers' compensation and employers' liability is important when assessing the consequences of natural disasters and political risks. Most of the casualties of 9/11 were work-related accidents, and even most of the more than 10,000 cases of illness resulting from the subsequent rescue and clean-up operations can be considered to be occupational.

In the **Central and Eastern European reform states**, the employers' traditional fault-based liability still applies, with some variations. It is usually covered by general liability insurance. And nor has liability practice been able to develop much where insurance density and the amounts covered are low. The Czech and Slovak Republics are a special case, with workers' compensation providing for full tort law compensation, i.e. workers' compensation and employers' liability are merged as a single insurance sector.

### International liability programmes

Occupational accidents and diseases are sensitive topics, also with regard to corporate social responsibility, especially where occupational safety standards vary between companies within the same group or in relation to suppliers and subcontractors.

The complexity of the wording in international liability insurance programmes does not always facilitate dialogue between the companies involved – the insured parent companies and their subsidiaries on the one hand and the insurance companies providing the international cover and basic local covers on the other. The relevant clauses are often questionable, being too defensive with regard to wholesale exclusions or sublimits when the entire capacity is not available in the case of major industrial accidents in a subsidiary. Clauses that cover subrogation but not the direct claims of an employee (along the lines of the German model) are of little value in most markets: if anything, direct claims should have priority.

The coverage of occupational diseases is questionable if there is no recognisable concept for dealing with long-term risk. In some industrialised countries, it may make sense to exclude asbestos or other specific occupational diseases, but such exclusions fall short of the mark especially in developing countries, where a wide range of illnesses have to be reckoned with. Long periods of latency between the start of exposure and the manifestation of the disease have to be assumed: for example, in the case of silicosis, German statistics put this delay at an average of 42 years. Periods of this magnitude will probably be involved in the silicosis claims of South African miners that are now just starting. During such a long period, ownership of local and international companies can change. The legal successors are confronted with the problem that the lines between legal, moral and factual liability are sometimes blurred.



Workers loading a cargo ship at Southampton docks in the UK.

Asbestos litigation has highlighted the atomisation and almost arbitrary interpretability of attributing liabilities and insurance cover in the case of long-term risks. The best way of pushing through standardised trigger and aggregation rules, and thus of avoiding the risk of the costs and reputational damage caused by coverage disputes may lie within workers' compensation and a compulsory employers' liability insurance such as the British model.

### Integrated corporate liability insurance

All employment-related aspects should form their own segment within a coordinated corporate liability insurance concept, just as should product, environmental and D&O liability. When assessing employers' liabilities, the differing legal backgrounds and insurance market structures in each country have to be taken into account.



Fishermen aboard the Jack Abry 2 empty their nets.

In doing so, a differentiation can be made between three sorts of risk:

- The traditional industrial risks that are the focus in developing countries, but which will also prove a burden in industrialised countries for many years to come, especially due to the asbestos issue
- More modern workplace-related risks such as back problems, psychosomatic and other similar "invisible" occupational illnesses; see the suicide cases mentioned in the France statement
- And finally, the newer liability rules on discrimination and harassment (see page 21), which are to be considered within their respective labour law context

In the current economic crises, emphasis is once again being placed on the importance of the companies as employers. Labour law is more flexible and closer international interrelations lead to numerous questions. A dedicated cover section should make it easier to provide a systematic overview of the various liability risks in employment relationships. The tacit or blanket coverage of these risks within general liability insurance customary in many markets is less

helpful here. It often leads to a restrictive position with regard to insurable liabilities or unclear positioning on the uninsurable ones – or both. Munich Re can offer its cedants comprehensive support in realising appropriate concepts.



**OUR EXPERT:**

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**Current study being conducted by ECTIL and Munich Re**

The first large-scale comparative-law study of employers' liability is currently being conducted by the "European Centre of Tort and Insurance Law" in Vienna (ECTIL) in cooperation with Munich Re. It investigates 12 countries: Great Britain, Germany, Austria, France, the Netherlands, Italy, Romania, Poland, Denmark, Japan, USA and Australia. This research project shows that there are dynamic tort law developments as well as latent liabilities in the traditional industrialised nations, varying in accordance with their respective market structures.

>> The study is due for publication in the **second half of 2011**. There will be a conference on the subject at Munich Re in Munich on **25 March 2011**.

# Employers' liability in cases of discrimination or harassment

If a company is sued for discrimination, it can get expensive – and the number of such lawsuits is increasing. The risks are generally covered by special products.

Ina Ebert

Alongside the traditional employers' liability for occupational accidents and illnesses, employers' liability for discrimination, moral and sexual harassment has developed in recent decades. This new form of liability is even more complicated when it comes to providing evidence or calculating the adequate amount of compensation than liability for personal injury. Apart from that, these torts are usually committed intentionally.

In the USA, this area of liability has been an established part of tort and labour law for a long time. If claims like this succeed, especially high punitive damages are frequently awarded. According to a study conducted by the US Department of Justice in 2001, the average amount of punitive damages administered by US civil courts was US\$ 50,000. In labour law discrimination suits on the other hand, this figure was US\$ 606,000 – more than in any other kind of civil law litigation.

A recent example: In May 2010 the pharmaceutical company Novartis was found guilty of sexual discrimination. The plaintiffs were awarded punitive damages of US\$ 250m in addition to compensatory damages of US\$ 3.3m. The claims were ultimately settled for US\$ 175m. Due to the important role of punitive damages in this kind of litigation, not only class actions based on discrimination with (hundreds of) thousands of class members, but also individual claims – for example in the banking sector or against celebrities – can end up being very expensive for the defendant.

In Europe, claims of this kind were very rare up until just a few years ago. This is changing slowly as EU Directives are implemented into national jurisdic-

tions. Since the year 2000, such EU Directives have forbidden discrimination in professional life, for example due to age, gender or handicap. However, the damages awarded in such cases remain much lower than in the USA, and it is much more difficult in Europe to use collective redress mechanisms. What is more, due to the European loser-pays-rule, the financial risk involved in such litigation for plaintiffs is much higher in Europe than in the USA.

## Separate insurance solutions

The risk of being liable for discrimination, moral or sexual harassment is generally not insured within traditional employers' liability insurance, but under separate products (employment practices liability insurance or country-specific insurance policies) or within D&O policies. Unlike traditional employers' liability, there are almost no overlaps with workers' compensation or other strict liability compensation systems, as the liability is generally founded on intentional breaches of law. Therefore, the new form of liability has again forced even legal systems in which the compensation of employees for physical injury has been (almost) completely shifted from liability law to alternative compensation schemes to address employers' liability and its unsolved problems.



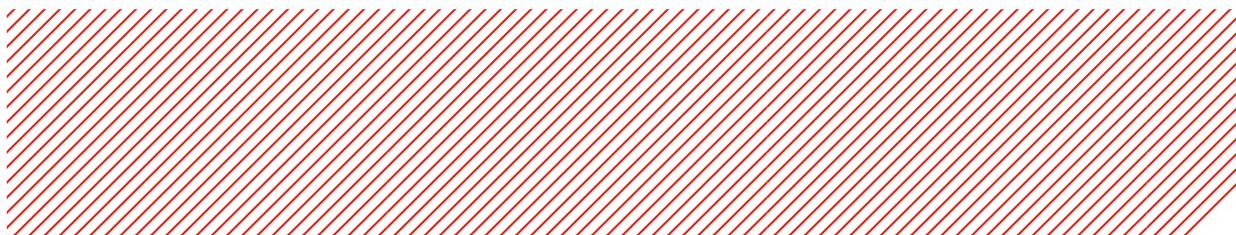
## OUR EXPERT:

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Solvency capital requirements and accounting regulations tie up capital. Reinsurance can help win back vital room to manoeuvre.

# More than reinsurance



Many life insurers face important challenges. A tailor-made reinsurance solution can help optimise risk and capital management, providing greater room to manoeuvre and a competitive advantage.

Berthold Glaser and Peter Miehle

Life insurers work in a very dynamic environment and challenges are coming from many directions. On one side, medical progress, demographic trends and changing lifestyles are constantly changing the risk landscape. On another side, companies operate with ever stricter legal requirements and fiercer competition. On top of all this, evolving rating and solvency requirements are making it ever more important to manage capital efficiently. If companies are to overcome these challenges, they must continuously enhance their business model, constantly improve their processes and deploy their capital in the most efficient manner. While traditional reinsurance can help life insurers manage biometric risks appropriately, financially motivated reinsurance (FinMoRe) can be a very useful and effective tool, when designed properly, to optimise a cedant's capital, solvency and financial situation.

Munich Re has developed a unique set of expertise and skills to help life insurers manage their capital efficiently and to design financially motivated reinsurance structures that can meet its clients' needs and specific situation.

### Types of FinMoRe

There are two basic types. The first type focuses on capital relief, for example for solvency or rating capital purposes. The basic idea is that the insurer transfers the capital requirements imposed by rating agencies or supervisory authorities to the reinsurer by means of a capital relief structure through a reinsurance contract. There are many different reasons why such transactions may be attractive to a life insurer. In some circumstances, the reinsurer may have access to excess capital to be deployed and this can be offered to the ceding company. Another possibility for a company like Munich Re is that the capital requirements of the reinsurer may be different from those of an insurer operating locally due to the diversification factor, for example. Lastly, the reinsurer may assess a specific risk differently than a ceding company due to its global expertise and experience. In all these examples, Munich Re, with all of its expertise, would be able to structure a reinsurance transaction resulting in capital relief for the ceding company at terms that are attractive when compared to other capital market options or the insurer's internal cost of capital.

An example of the second type is the financing of acquisition costs. If the reinsurer assumes the insurer's acquisition costs, the insurer can spread the cost of generating new business more evenly. Capital relief may be a beneficial side effect, but the main purpose of this type of reinsurance is to manage earnings. Apart from these two basic types, there is a multiplicity of variations and combinations, providing virtually unlimited possibilities. The regulatory, statutory and tax implications of every transaction are, of course, very carefully analysed before the treaty is put into effect.

### Tailor-made solutions create real value

Financially motivated reinsurance is a complex instrument. Munich Re brings together expertise and experience in all the relevant disciplines – actuaries, accounting, tax specialists and business analysts – to enable the cedant to make full use of the possibilities. Our experts consider every situation unique and look at the company as a whole in order to devise the right solution for each client. Our financial strength also enables us to offer solutions involving very substantial amounts.

### Rating capital relief – An example

The problem: A client plans to increase its return on equity by means of a share buy-back programme. It is looking for a solution that would free up the necessary capital, while allowing it to maintain its existing rating at the strategically defined level.

The solution: Working closely with the client, Munich Re actuaries, business analysts and client managers look at the specific requirements of the market as well as opportunities to use reinsurance as a capital relief instrument. As ceding too high a share of the risk can put further pressure on the insurer's earnings, a high level of actuarial expertise is crucial.

# Is your knowledge up to date?



At Munich Re seminars, you can broaden your knowledge and learn about the latest industry developments.

You can benefit from our experts' outstanding specialist knowledge and network with colleagues from other companies. Munich Re's seminar programme is sure to offer you what you are looking for.

To find out more about our seminar programme, contact your client manager or visit our client portal at [connect.munichre](https://connect.munichre.com).

**NOT IF, BUT HOW**

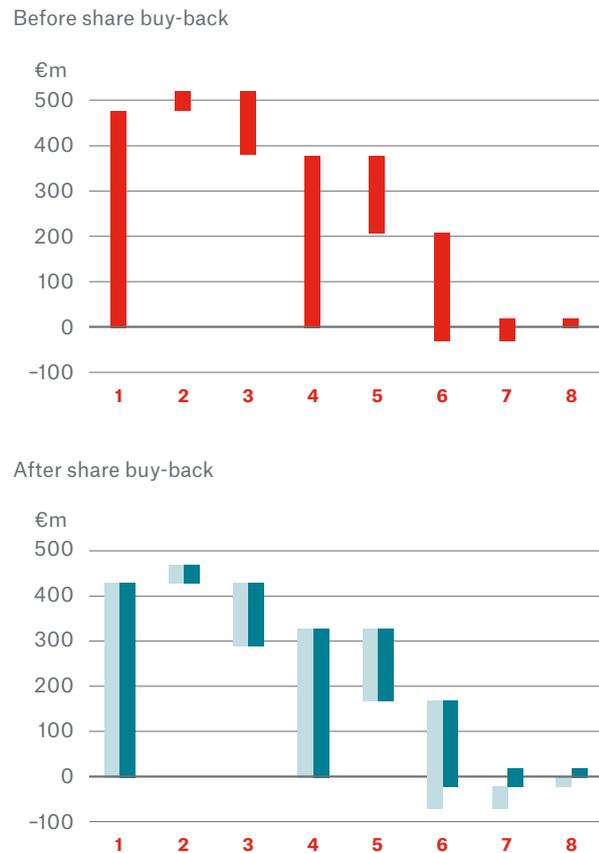
*Our experts consider every situation unique and look at the company as a whole in order to devise the right solution for each client.*

Munich Re identifies substantial transferable risk in the company's term life business portfolio. Working with the insurer, our specialists estimate that a cession quota of 50% of the company's risk capital tied to term life insurance will be sufficient. This is also the maximum rate of solvency capital relief that insurers are permitted to obtain through reinsurance under Solvency I, so local solvency capital relief is also provided. A first price indication is calculated and the solution is presented to the client approximately one week after the start of the project.

We then analyse the impact on the client's financial rating of the capital relief obtainable. Experts model a variety of scenarios to achieve optimum calibration for the reinsurance on the basis of the rating agency's model. Within three weeks, Munich Re is able to demonstrate that the client company's rating can be maintained or even moderately enhanced, thanks to the capital relief reinsurance, despite the planned share buy-back. The solution is implemented and provides the client with rating capital relief. The company is able to complete the share buy-back for the planned amount and achieves a higher return on the remaining capital (see Fig. 1).

Munich Re client managers then review the impact of the reinsurance on capital efficiency annually with the client, so that the client is always in a position to take any further action required in good time.

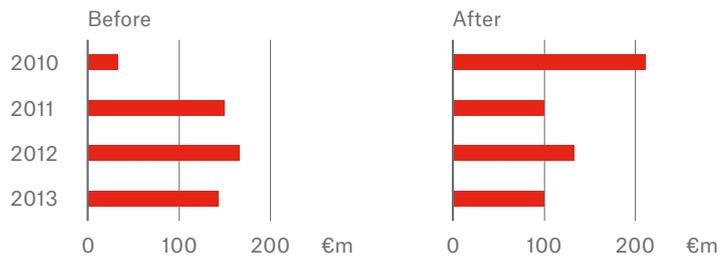
**Fig. 1:**  
Rating requirements for a sample client



In determining a company's rating, agencies compare available capital with the capital requirement for the business taken on. Reinsurance can be a decisive factor in retaining a rating.

- 1 Capital
  - 2 Positive adjustments
  - 3 Negative adjustments
  - 4 Available capital
  - 5 Capital for risks on the assets side
  - 6 Capital for risks on the liabilities side
  - 7 Diversification
  - 8 Surplus/deficit
- Legend:  
■ Without reinsurance  
■ With reinsurance

**Fig. 2:**  
Results before and after reinsurance



A reinsurance solution can enable future profits to be realised to cover individual actions, such as payment of an increased dividend

Conclusion: Our client realised its objective of increasing return on equity swiftly, smoothly and efficiently. In contrast to other ways of obtaining capital, the reinsurance solution avoided potential negative signals to investors or the market, and despite the reduction in capital the insurer retained its excellent financial rating. Above all, the client emerged from the process with optimised capital and risk management structures, enabling it to use its resources more efficiently and increase profitability.

**Realising future profits**

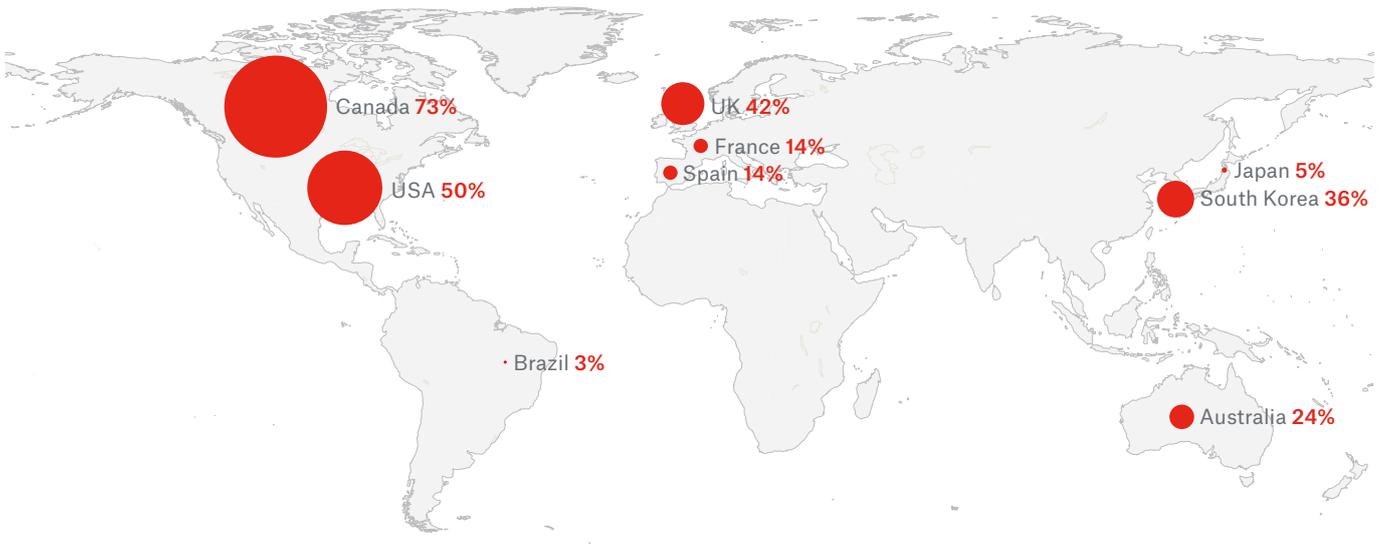
A client wishes to pay a higher dividend to its parent company, but its current annual result does not allow it to do so. However, due to the long-term nature of life insurance and the fact that future premiums usually exceed future benefits payable, there are future profits in its portfolio that will only be realised over the next few years. A reinsurance treaty can be used to realise a portion of the future profits now, significantly improving the annual result and making it possible to pay the dividend (see Fig. 2).

**Use of FinMoRe varies from market to market**

In continental Europe, life insurers have so far made significantly less use of financially motivated reinsurance than in the “Anglo-Saxon” markets, where considerably more risk has traditionally been transferred to reinsurers. This is due to the fierce competition in the countries concerned and sometimes also due to the difference between the capital requirements for primary insurers and reinsurers. An indicator of the penetration of financially motivated reinsurance in individual countries is the cession quota – the percentage of insurance premiums or volume received accounted for by ceded reinsurance premiums or volume (see Fig. 3).

The US and Canadian markets also look very closely at capital efficiency. This thinking is not as pronounced in continental Europe and other more conservative markets. The pressure from the capital markets to continuously increase the value of a company casts a new light on the benefits of reinsurance. The shares of companies with strong and active capital management and a clear focus on corporate and shareholder value usually perform significantly better than those of more conservative players. And many insurers could considerably increase their value by means of financially motivated reinsurance.

**Fig. 3:**  
**Cession quotas for selected countries (2008)**



One region where there is a large demand for such solutions is Asia. The Asian markets are extremely dynamic, and in dynamic markets availability of capital is often a decisive competitive factor. Financially motivated reinsurance is therefore an important instrument for dynamic markets such as Asia and also Eastern Europe, but it can play a significant role in mature markets too because capital is limited.

These solutions have different applications in different markets, but there is potential everywhere. Demand is likely to rise further as more life insurers become aware of the opportunities and benefits FinMoRe offers.

The proportion of estimated premium income ceded in each country clearly demonstrates the different levels of utilisation of reinsurance.

Source: Munich Re Market Research



**OUR EXPERTS:**

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**[pmiehle@munichre.com](mailto:pmiehle@munichre.com)**

## Dealing with risk

### Between risk and prevention

Zoran Andrić

**As society changes from classic industrial to modern, so has our perception of risk changed. Modern society is not just more vulnerable but also much more sensitive to dangers and threats than previous societies. One of the key challenges lies in determining how to redefine and restructure the relationship between risk and safety.**

This book looks at scientific research on how we handle danger in the 21st century and how the terms safety and risk have established themselves and evolved in our political and social thinking. The idea for the book dates back to a conference in November 2008 at the Humboldt University in Berlin as part of the "Safety and Risk" project.

There is no such thing as absolute safety. Risk is part of life. We should not take a fatalistic approach to all the dangers we face in life, nor should we simply ignore them. Rather, we have to consider individual risk and danger factors as an essential part of the way we approach safety.

This book looks at different ways of handling safety and risk. It is also about the role of sociological imagination that is inextricably linked to these concepts.

The first section of the book analyses changes in the perception of danger and insecurity and the transformation of risk management. Herfried Münkler argues that freedom and safety are linked by way of a complex relationship, which is couched in the usual oppositional semantics.

The second part of the book deals with new conflict scenarios, strategies and security architectures. Ulrich Schneckener develops the basis of a global security policy, which could overcome the perceived crisis of the multilateral system and improve the security policy balance. Thirdly, a number of writers analyse socio-political questions resulting from the transformation of social risks. For example, new ways of fighting poverty through alternative risk transfer are presented and the challenge of modern welfare states analysed.

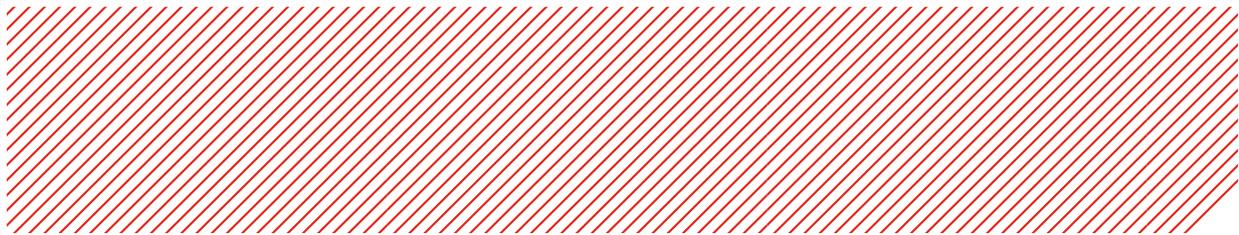


Herfried Münkler/Matthias Bohlender/Sabine Meurer  
**Dealing with risk.**  
 Between risk and prevention  
 Bielefeld: transcript 2010



Fog can be a major issue for airlines based at Heathrow.

# Safety in the face of nature's uncertainties



Natural phenomena are a danger to air traffic. Aviation policies come into effect if passengers, aircraft or installations are damaged. However, there is no cover if operations are halted without any damage causing this interruption. But coverage concepts for this are feasible and Munich Re has developed some flexible solutions.

Steven Schmidt and Petra Wolf

6 February 2010, Dulles Airport, Washington DC, USA. Around 800 planes take off or land here every day. The air-traffic controllers in the tower are keeping a close eye on their screens as a band of low pressure slowly but steadily makes its way forward. As it becomes clear that the blizzard will cross directly over the airport, a number of business jets are immediately moved to a hangar as a precaution.

In the early hours of the morning the snowstorm hits the airport with full force. Thick snowflakes settle on the runway and the hangar. Soon there is a covering of snow 90 cm deep. Under the heavy pressure of the snow, the roof of the hangar collapses and crashes down on the planes. Twenty business jets in the hangar are damaged, seven are write-offs. The loss comes to US\$ 250m. But the hangar operator and the owners have taken the necessary precautions. The loss, even in such extreme cases, is covered by aviation all-risks policies, which cover damage to planes that occurs during operations, even if the aircraft are in the hangar or parked on the tarmac.

There are many meteorological and geological occurrences that can pose a danger to aviation, although the effect they have varies according to the type of aircraft and flight phase involved (see Fig. 1).

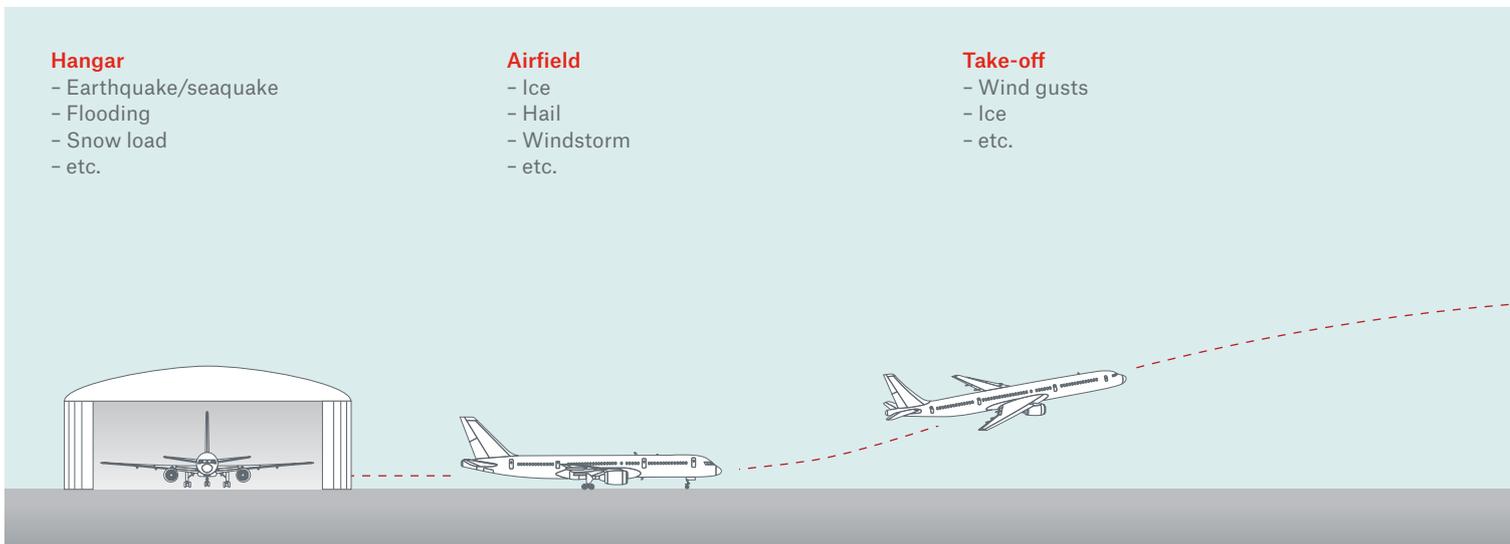
**Meteorological risk**

During the winter, snow and ice frequently cause delays, cancellations and accidents. Just like on the roads, the slippery surface makes braking and steering difficult if not impossible.

Ice on the aircraft wings is also a problem, as even a small amount of ice can significantly impede aerodynamics. It may even make it impossible for a plane to take off in such conditions. If a plane passes through a snowstorm or freezing rain which produces ice on the wings, it can end in disaster. One such case was an American Eagle airline’s regional flight in Indiana in 1994, which claimed the lives of 68 people. Another case in January 2004 had a happier ending: after ice on the engine shroud had become dislodged and damaged the engines, an Austrian Airlines plane had to make an emergency landing in a field near Munich Airport. The passengers had a lucky escape, with only three sustaining minor injuries.

Airlines and airports therefore ensure that planes are de-iced immediately prior to take-off. Modern aircraft are also designed to prevent ice forming on the wings, engines and tail. In addition, heated air from the engine is pumped through the wings’ leading edge; on smaller planes inflatable rubber “boots” are used

**Fig. 1:**  
Natural hazards in different flight phases



which can expand when necessary and break up the ice layers. Planes can also be equipped with ice sensors, which help pilots to leave such weather conditions if they have strayed into them.

In the summer, thunderstorms are the main problem. Heavy rain can impede a pilot's view or cause aquaplaning during landing. Investigations by Boeing have shown that on average planes are struck by lightning twice a year. Although thunder and lightning do tend to scare passengers and crew, planes are usually able to easily withstand lightning as their metal shell acts as a Faraday cage. However, the fuselage of most modern aircraft, such as the Airbus A380 and the new Boeing 787 Dreamliner, are primarily made of composites. These incorporate electrically conductive materials in order to achieve the same effect. The risks of especially violent positive lightning was first noticed in 1999 when a glider was destroyed by lightning. Subsequently, many other previous crashes have been attributed to this cause, especially in the early years of aviation when technology was not equipped to cope with such perils.

*On average planes are struck by lightning twice a year.*

Hailstorms are a danger to planes in the air and on the ground. However, they usually only damage the exterior and major problems are a rarity.

Windstorms, especially those with strong gusts, are a considerable challenge for pilots at any time of the year. Accurate instrument readings are crucial to help them cope with such conditions. Wind direction and wind speed are vital factors in preparing for landing and for reasons of flight safety, it may be necessary to land at another airport. This is ultimately the captain's decision. The instruments are constantly being improved, increasing safety in aviation and ensuring fewer accidents. Munich Re also supports such initiatives through the RegioExAKT project (see page 34).

**Flight**

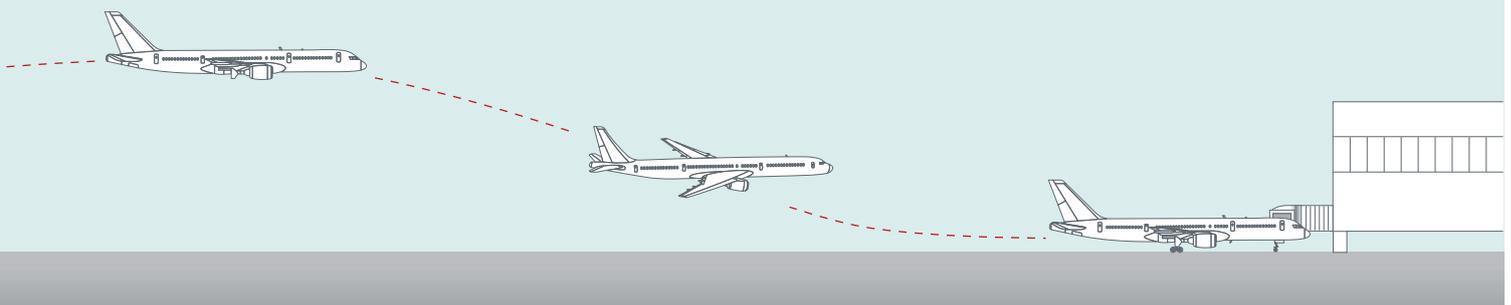
- Heavy rain
- Hail
- Turbulence
- Volcanic ash
- etc.

**Landing**

- Fog
- Ice/snow
- Wind gusts
- etc.

**Passenger terminal**

- Earthquake/seaquake
- Flooding
- etc.



Visibility problems, such as fog, have also been made less hazardous by modern technology. Planes can now land even in zero visibility conditions. However, in order to do this, the right technology is needed on the ground and in the air and pilots have to be specially trained to cope with such conditions.

Flight safety units also constantly monitor – in summer as well as in winter – the weather conditions along the flight path and help pilots to avoid areas with poor weather conditions.



## RegioExAKT

Munich Re supports a project run by the German Aerospace Center to conduct research into regional climate and to develop adaptation strategies. The aviation industry clearly also benefits from this research.

What is the extent of losses caused every year by extreme weather like straight-line winds, hailstorms, torrential rain, lightning or tornadoes? What is the regional distribution of such extreme weather? And given climate change, how will things evolve by 2030 and beyond? The annual loss for Germany from heavy storms is currently estimated to be between €1bn and €2bn. For all of Europe the figure is put at between €5bn and €8bn. However, there are still significant gaps in knowledge when estimating the economic risk and the risk of change resulting from global warming. This is what the project RegioExAKT (regional risk of convective extreme weather events: application-based concepts for trend analysis and adaptation) aims to remedy.

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### The project

Since 2007, the German Aerospace Center (DLR) and ten partners from the world of science and commerce, including Munich Re, have been analysing these questions on an interdisciplinary basis. Weather-sensitive industries such as aviation, insurance, construction and water authorities urgently need regional risk analyses and findings on trends and adaptation strategies. This is the only way they will be able to anticipate changes and take appropriate preventive action. The main users of the results of this project, sponsored by the Federal Ministry of Education and Research, will be Munich Airport and Munich Re.

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### Project plan

Firstly, extreme weather trends in southern Germany are examined and compared using re-analysis and observation data as well as global and regional climate model simulations. On the basis of these scenarios, the economic and insured risk is estimated along with future settlement, construction and value structures. This provides benchmark figures for revising the construction and assessment bases. Finally, adaptation measures are defined.

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### Project objective

One of the main beneficiaries of the project is Munich Airport, which will enjoy optimised nowcasting of extreme weather thanks to improved and more precise metrology (such as radar and lightning detection). In other words, weather forecasts for the next two to three hours will become far more accurate, warning times longer and air traffic safer. The project will also help to improve the drainage concept at Munich Airport.

What Munich Re expects to gain from this project are new findings on the changed frequencies or intensities of thunderstorm losses, which should bring about regional adjustments and improved risk management in the insurance industry. Even today, warnings of summer thunderstorms is one of the services offered by insurers that help prevent losses.

The results of the project will be published in 2011.

>> For further information about the project, visit [www.regioexakt.de](http://www.regioexakt.de) or contact [geo@munichre.com](mailto:geo@munichre.com).

### Geological risk

But it is not just meteorological phenomena that affect aviation: geological events can also be extremely dangerous. A terminal building or hangar collapsing from an earthquake is not an unlikely scenario. Fuel pipes laid under the airfield may be damaged, at worst fire will break out.

Tsunamis following seaquakes are a danger to airports on the coast. At airports like Kansai or Kobe in Japan, which are built on reclaimed land, earthquakes can create liquefaction. In other words, the soil acts like liquid following the earthquake shocks. The entire substratum becomes highly unstable.

The impact natural phenomena can have on aviation was highlighted by the volcano eruption on Iceland in April 2010. The ash cloud almost entirely paralysed air traffic over Europe. The risk of soot and silicate particles damaging the engines and causing them to shut down was considered too great. In order to avoid accidents therefore, the aviation authorities closed large parts of European air space.

>> You can download more about this subject in **Topics Geo 2010** at [www.munichre.com](http://www.munichre.com))



De-icing of an Air China plane just before take-off.

*According to IATA estimates, the loss from the Eyjafjallajökull eruption came to US\$ 1.8bn for the airlines alone.*

Not long after Iceland, a similar thing happened in Central America and the South Pacific, although it went largely unnoticed by the public. The volcanoes Pacaya in Guatemala and Yasur on the Pacific island of Vanuatu erupted. Aircraft in both regions were grounded. Every year there are occurrences like this somewhere in the world, for example in autumn/winter 2010 in Indonesia when the Merapi volcano erupted. However, the chain of events in the Eyjafjallajökull eruption was unique: the glacier water on the volcano helped to form particularly fine glass particles, which were then carried up to extremely high levels. The general weather pattern then moved the cloud to an area with a very high volume of air traffic.

### Costly business interruption

In the aviation industry airlines and airport operators, to name just two parties, were massively affected by this business interruption. But other industries were also badly hit. For example, production in the car industry was affected due to supply failures. BMW had to stop production in a German factory as electronic parts could not be delivered in time.



Lightning often looks spectacular but rarely has any effect on planes.

The loss from the Eyjafjallajökull eruption, US\$ 1.8bn for the airlines alone, according to IATA estimates, is substantial – and uninsured. With business interruption, aviation insurance policies usually only come into effect when preceded by damage to the insured object. This was not the case here.

In underwriting terms, coverage concepts are possible. However, there has been scant demand for such solutions so far, as scenarios of this kind have generally been considered to be highly unlikely. But after last year's events, airlines and airport operators now have to seriously consider how they set up their preventive risk management and above all just how long they are willing or able to finance business interruption with their own funds.

Munich Re can offer airlines and airport operators solutions which cover business interruption as a result of ash cloud or snowfall. We work closely with

the client to find the exact cover required. Each individual client's risk appetite is taken into consideration in determining the scope of cover and the amount of deductible. The objective is to come up with a customised solution that offers value for money.

>> Munich Re has been supporting the aviation industry for 100 years with innovative solutions that help to ensure the success of an industry that is always striving to reach new heights. A summary of Munich Re's involvement with aviation from the beginnings to the present day can be found in the 5/2010 issue of Topics Online at [www.munichre.com/100yearsaviation](http://www.munichre.com/100yearsaviation).



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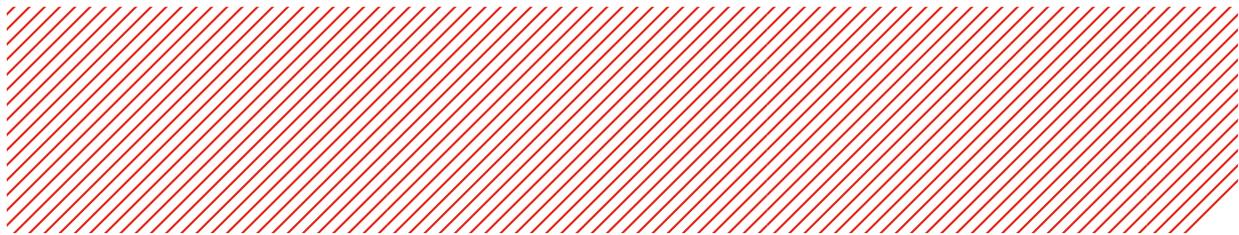
For further information, please contact your client manager or go to [connect.munichre.com](https://connect.munichre.com)

**NOT IF, BUT HOW**



The Alois Alzheimer Guest House in the Munich district of Schwabing offers an ideal setting for academic learning.

# On the fast track with Munich Re



Training is given high priority at Munich Re and much of it is also available to our cedants. The Alois Alzheimer Scholarship, for example, is a programme that gives high potentials the opportunity to gain a wide range of experience.

Regina Radetzky

A typical day in Munich during the summer of 2010 – it's raining. "Where's the remote control for the weather?", quips one of the twelve scholarship holders. Two women and ten men, four continents, ten countries. The scholarship holders from Argentina, China, Britain, Ireland, Singapore, Italy, Jordan, South Korea, South Africa and the Netherlands are gathered in the rotunda of the Alois Alzheimer Guest House. All of them have just made their first major career move: for the past two days they have been Board members of different insurance companies. And they now face their first major challenge, as they have to adjust their company's strategy to market conditions, take advantage of business opportunities, minimise risks and optimise reinsurance protection in terms of solvency.

Solvency is represented by a plucked rubber chicken that cackles horribly if squeezed too hard. Mauro Zoladz from Zurich insurance in Argentina holds the chicken in his hand and declares himself the group's "guardian of solvency". Why does he take this burden upon himself? "This is a topic of utmost importance in Argentina. I want to find out as much as I can about it and here I have the chance to analyse the companies' business figures and make new findings."

The companies Mauro Zoladz is referring to are five virtual insurers. In the insurance strategy game "riva – Property Insurance Simulation Game", the scholarship holders work in groups of three to try and outperform their opponents. Each team is an insurance company with property as its core business. Each group has exactly the same set of criteria to work with: products for industrial, commercial and private clients, sales via agencies, four operative areas, a centralised client service centre, accounts, claims handling, reinsurance, control and an IT department. The Board of Management's main task is to develop and successfully implement a strategy. At the end of the game, they have to present their results to investors and analysts and prove to the capital markets that their strategy and company are up to scratch.

### Varied content

The game of strategy lasts several days and is one of the programme's interactive components which combine insurance know-how with business management and investments. The scholarship programme also includes more than 15 seminars covering topics from general reinsurance to specific lines of business. The seminars offer the participants a thorough grounding in each class of business and an overview of the current business environment in each case – straight "from the horse's mouth", in other words from underwriters and experts at Munich Re (see inset on page 43).



"The scholarship gave me the chance to expand and improve my reinsurance know-how. The different management skills seminars also helped me a lot and the 'cocktail of cultures' inspired me."

**Vedanth Ori**, Head of Department Finance, New National Assurance Co., Durban, South Africa



"The scholarship surpassed even my expectations. The insurance strategy game was very realistic and I learned a lot about Solvency II."

**Eelco von Schagt**, ASR, the Netherlands

"For me, it was especially important to extend my networks to Munich Re HQ. Uncomplicated and quick contact with client managers, underwriters and experts is a huge plus."

**Ken Hung**, Actuary, Assistant Regional Manager, Munich Re Singapore



Another highlight of the programme is the cooperation with the Munich Risk and Insurance Center at the Ludwig Maximilian University in Munich. Dr. Andreas Richter and his team offer an insight into the workings of this centre for international insurance research and theory. Risk management and its many complexities are a particular focus of the centre's work.

Besides the technical side of training, the scholarship holders also get the chance to improve their personal skills and management expertise. This part of the programme starts in the very first week of the scholarship holders' stay in Munich with a three-day workshop entitled "Intercultural awareness and communication". This training is designed to broaden the participants' horizons and raise their awareness of different communication cultures. The basic premise is that awareness of cultural differences can help to avoid misunderstandings. The training programme on convincing presentation techniques also deals with many aspects of personality.

### A success story since 1953

The beginnings of the scholarship programmes go back to 1953. Back in those days, we first invited insurance companies abroad to send qualified junior managers to Munich to get to know our company and the activities of a reinsurer. Over the years, this individual training programme has developed into an institution with two full scholarship programmes and numerous client seminars. One of these programmes is the Alois Alzheimer Scholarship, established in 1969 in honour of former Munich Re Chairman Dr. Alois Alzheimer. One of Dr. Alzheimer's most important achievements was the rebuilding of Munich Re's foreign business after the Second World War. Training and sharing reinsurance know-how were also prime concerns of his, as staff qualifications and performance are ultimately what determine a company's commercial success. These principles, albeit much further advanced, still characterise Munich Re's client-service strategy today.



"This is my first time outside China and I think Munich is a wonderful city. For me, the scholarship is an important step in my career. The diversity of the seminars is excellent. I was particularly interested in the evaluation of reinsurance treaties and general business management."

**Tony Zhihui Tong**, Reinsurance Executive,  
China Life Property & Casualty, Beijing



"When I was told I would be participating I was thrilled. You really have to be a high-potential candidate to get on this programme. It also meant I was able to fulfil a lifelong dream of mine to meet up with people from all over the world and establish international contacts."

**Lorena Rios López**, Underwriting  
Director of Automobile Insurance,  
Suramericana, Bogotá



"I already have a few years under my belt as an underwriter and this scholarship really rejuvenated me. The lectures and seminars at the university were particularly intensive. I have gained a lot from the programme. The organisation was superb."

**Mark Taylor**, Underwriting Manager Transfrontier,  
Aviva/Norwich

### New concept for 2010

The scholarship programme was completely restructured in 2010 and shortened to three months in order to be more in tune with scholarship holders' professional requirements and not overly disrupt insurers' organisational operations. In order to achieve the desired level of quality, the organisers develop the programme every year together with insurance experts at Munich Re. The organisers draw on the know-how of Munich Re's internal network of 280 experts and on the Munich Risk and Insurance Center. Another crucial source for annually updating the programme is the detailed verbal and written feedback from participants and client managers. As the training programme demands a high level of commitment from all involved, everyone has to be convinced of the value of this "investment".

### How do you get to become a scholarship holder?

Firstly, client managers at Munich Re suggest client companies. As demand for places on the programme has long outstripped availability, Munich Re is forced to make tough decisions regarding participation. As our choice of scholarship holders is supposed to reflect an investment in long-term client relationships, we tend to give preference to insurers that also have the long-term view in mind. The scholarship is not intended solely as a development measure for "young" insurance companies or for cedants from emerging markets. On the contrary, young managers from large insurers in established markets regularly participate in the programme. One particular objective for the make-up of the scholarship holders is to try and ensure the international nature of the programme. In other words, Munich Re tries to get as many different nationalities on board as possible at one time. After all, one of the great attractions of the programme is that participants can build up contacts across continents. 2010 saw the first scholarship participants from within Munich Re's international organisation. The reasoning behind this is simple: we want to reinforce our client relations and ensure they have excellent contacts with Munich Re in their local markets.



**The 2010 scholarship participants**

Left to right:

Front:

Mark Taylor,  
Vedanth Ori,  
Eelco von Schagt,  
Lorena Rios López,  
Ling Yang,  
Tony Zhihui Tong,  
James Deegan.

Back:

Mauro Zoladz,  
Luca Messana,  
Alex (Yeonsung) Jung,  
Ken Hung,  
Jamal Asfour.

### Dialogue is our business

We regard the development of talented staff at our client companies as an investment in our client relations. Yesterday's scholarship holders are frequently today's business partners. However, we do not see the provision of know-how as a one-way process. On the contrary, we pass on our knowledge and experience and in doing so generate new and deeper knowledge. This belief is reflected in our motto "Dialogue is our business".

And every year it is fascinating to see how participants get to know each other and gel as a group. In 2010, we had a particularly keen and motivated group. The participants were all extremely ambitious and spurred each other on to greater achievements, without losing their sense of fun. This is borne out by the number of trips and excursions they undertook as a group outside of the official programme. Such an atmosphere is not only conducive to excellent professional training but also creates strong personal ties among the participants that can last a lifetime.

>> To find out more about Munich Re's training programmes, check out the client seminar programme at [connect.munichre.com](http://connect.munichre.com) or contact your client manager.



### OUR EXPERT:

Regina Radetzky is head of Munich Re's Client Seminars department, which develops and organises client seminars and scholarships.

[rradetzky@munichre.com](mailto:rradetzky@munichre.com)

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### Main features of the scholarship

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- 1. Institutional expertise:** An exclusive cooperation partnership with Munich's Ludwig Maximilian University exists for the scholarship holders. Professors from the Executive Master of Insurance course instruct the participants on topics such as insurance economics, marketing and value-based management.
  - 2. Technical primary insurance and reinsurance knowledge:** This part of the programme covers underwriting, reinsurance and claims management in selected lines of business.
  - 3. Leadership knowledge:** Participants acquire the theoretical and practical knowledge needed by future managers, for example in the riva insurance business game, presentation training and in a workshop on project management.
  - 4.** The programme is rounded off by **visits** to the German Insurance Association in Berlin, to Munich Re, London, and a guided tour of Lloyd's of London.
  - 5. Research work:** Each scholarship holder conducts in-depth research into an insurance-related subject during the programme and presents the results of this work to the rest of the group.
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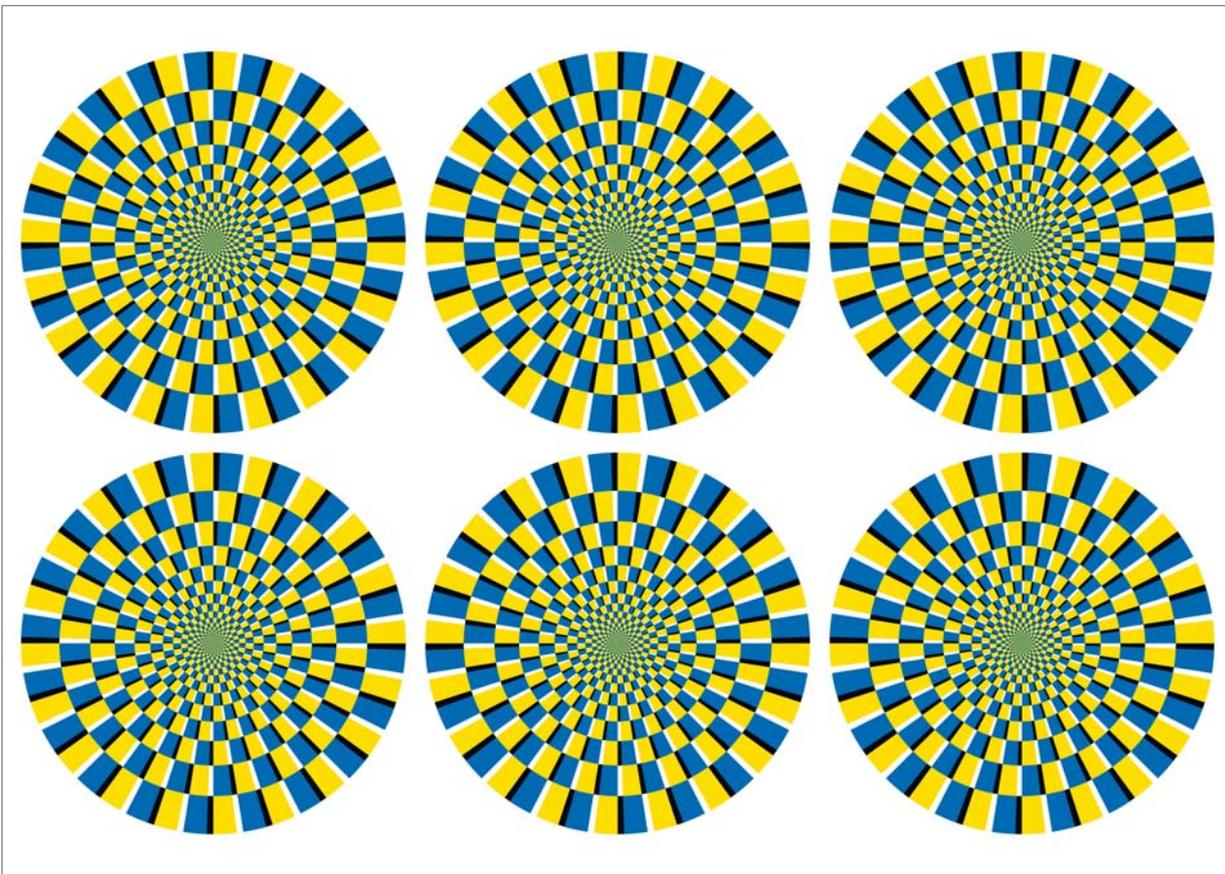
## Open Mind – Ideas for thinking laterally



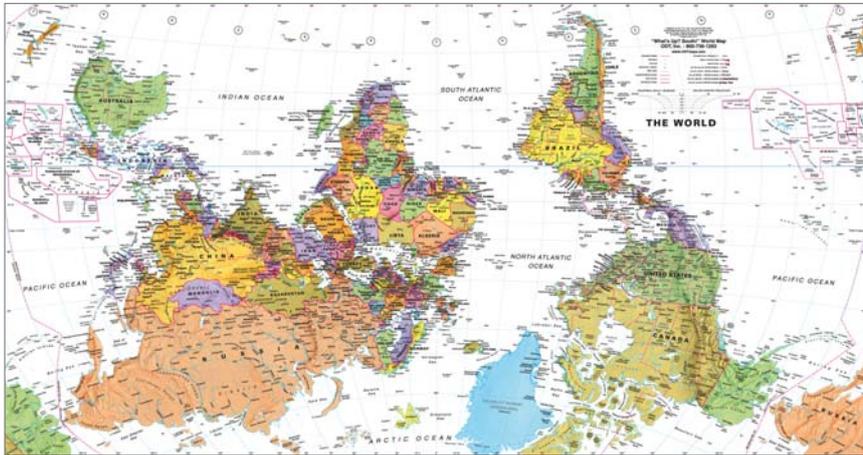
Departing from the beaten track, thinking laterally, seeking new approaches and angles. These are the first steps to overcoming the natural barriers of your own perception and reasoning. Our promise reads “Not if, but how”. And lateral thinking is vital when searching for innovative solutions.

Munich Re’s exhibition Open Mind, which runs until August 2011 at Schloss Hohenkammer, takes visitors on a voyage of discovery into their subconscious and opens up new perspectives. After all, anyone who wants to know what they are seeing must first realise what they are unable to see.

>> You can find out more about the exhibition at [www.schlosshohenkammer.de](http://www.schlosshohenkammer.de).



Kitaoka Akiyoshi “Rotating snakes”  
Are we in our right minds? No, nobody is.  
Accepting this fact and questioning our own views is the first step towards an open mind.



**“What’s Up? South!” world map**  
Why does “right side up” always have to be “up”? The only way to escape the confines of habit is to turn things upside down every now and then.

**Glue Society Installation view**

If we see too much, learn too much, think we know too much, we fail to see the big picture. Decluttering becomes an end in itself, and seeing, experiencing and knowing are lost in the process.



**Daniel Eatock “Tree Series”**  
It is usually the majority that decides what opinion to follow. And so it is difficult to look at things from a different angle. But this angle can be valuable in helping to form your own opinions.



**Make it happen**

What might exist in the space between being and non-being is a philosophical question. Is the world really more than the image we make of it?

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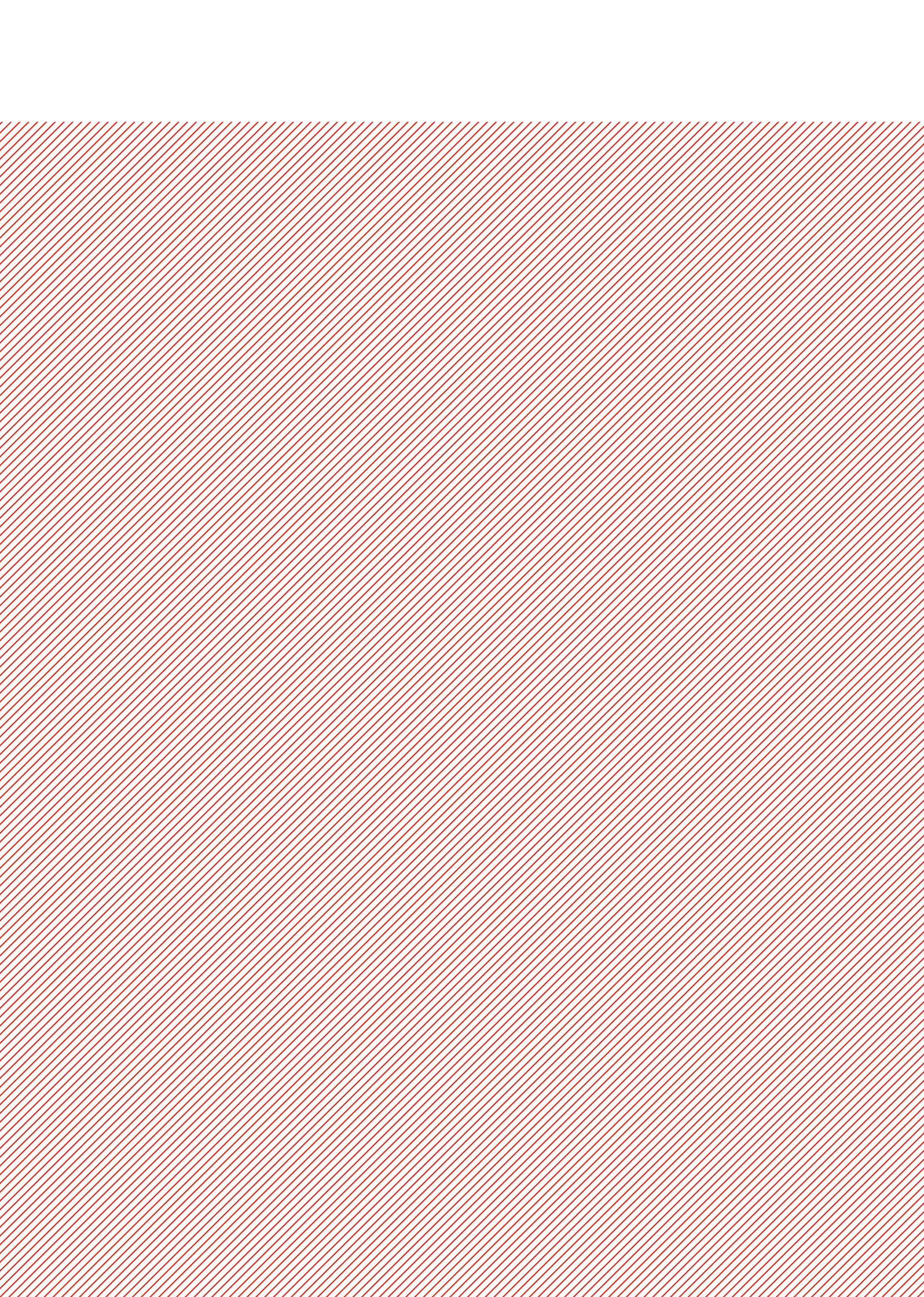
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