

Reinsurance

Introduction

Reinsurance is the means by which a direct insurance company seeks protection against the risk of losses; equivalently, reinsurers provide insurance to insurance companies. Due to their ability to specialise and achieve a better economy of scale than direct insurers, reinsurers are able to provide coverage for various types of risks ranging from sickness and death to natural disasters such as hurricanes and earthquakes. The policies reinsured is often referred to as the *ceding business*.

There are many reasons for an insurance company to seek reinsurance for all or part of its liability, which could include but not limited to the followings:

Risk transfer

The main purpose of reinsurance is to allow the ceding insurance company to write and assume individual risks that are greater than its capital size would allow, thus offering larger limits of protection to policyholders than otherwise possible. Reinsurance also protects insurers against catastrophic losses.

Income smoothing

In taking all or part of the risks, reinsurance helps to smooth out the financial results of an insurance company, making them more predictable by absorbing larger losses. This enables easier business planning and financial projections.

Surplus relief

Under some typical reinsurance arrangements, insurance companies are allowed to reduce the amount of net liability they need to hold on its balance sheet by an amount equals to the *reserve credit*. Very often, reinsurers offer an initial commission or rebate to the insurance companies, thus further helping them to reduce the strain of writing new business.

Product development

In many circumstances, reinsurers are able to provide expertise about development of the more sophisticated product types. They work closely together with the insurance companies' actuarial team to design the best tailor made products.

Source of profit

Although more of an enhanced benefit instead of a core driver, insurance companies may be motivated by the fact that they are able to reap "arbitrage" profits by purchasing reinsurance coverage at a lower rate than what they believe the cost is for the underlying risk. This is achievable because reinsurers are more specialised in certain types of risks, allowing them to attain critical mass and hence a good economy of scale.

Treaties

A reinsurance treaty represents the terms of agreement between an insurer and a reinsurer. Reinsurance treaties can either be written on a continuous basis or on a term basis. A continuous contract continues indefinitely, but generally has a defined noticing period whereby either party can give its intent to cancel or amend the treaty within a period of about 60 to 90 days. On the contrary, a term agreement has an explicitly built-in expiration date. It is typical for insurers and reinsurers to have long term relationships that span many years.

Reinsurance can also be purchased on a per policy basis in which case it is known as *facultative reinsurance*, which is commonly used for large or unusual risks that do not fit within standard reinsurance treaties due to their exclusions. The term of a facultative agreement coincides with the term of the specific policy in concern.

Almost all insurers do not place reinsurance agreements with one single reinsurer but with treaties shared among a number of reinsurers. The reinsurer who sets the terms and contract conditions for the reinsurance contract is the lead reinsurer, whereas the other companies subscribing to the contract are the following reinsurers.

Types of reinsurance

Quota share

Quota share, or proportional reinsurance, involves one or more reinsurers taking on a specified percentage share of each policy from an insurance company. The reinsurance agreement is typically administered on a periodic basis such as quarterly. At the end of each quarter, the reinsurer(s) will receive that specified percentage of each dollar of premiums from the insurer and will in turn pay that percentage of each dollar of losses as *claims recoverable* to the insurer. In addition, the reinsurer will normally make an upfront ceding commission payment to the insurer to compensate it for the costs of writing and administering the business. This type of reinsurance allows insurers to write business which they may not have sufficient capital to retain fully. While premiums and claims are all shared on a pro rata basis, ceding commission from the reinsurer(s) helps the relief of new business strains.

Another, though less common, form of proportional reinsurance is surplus share. An insurance company defines a policy limit amount X and each additional amount of X is considered as a layer. In the simplest form of arrangement, if the insurance company issues a policy with $X = \text{US\$}100,000$ coverage, all of the premiums and claims generated from the policy will be retained by the insurer. If a $\text{US\$}200,000$ policy is issued then half of the premiums and claims will be ceded to the reinsurer (1 additional layer); whereas for a $\text{US\$}800,000$ policy the additional 7 layers of coverage will be ceded to reinsurer(s) implying a quota share percentage of 87.5%. There is usually a maximum number of layers defined in the terms of agreement between the insurer and reinsurer, and this in turn determines the maximum policy limit that can be offered by the insurance company to policyholders.

Excess of loss

Excess of loss reinsurance is in essence non-proportional reinsurance, under which an insurer sets a *retention limit* of policy coverage, and the reinsurer will take on any losses in excess of that

specified retention amount. An example of this form of reinsurance is where the insurer is prepared to accept a loss of HK\$1 million for any loss which may occur and purchases reinsurance of HK\$4 million in excess of the retention limit. If a HK\$2.5 million claim occurs the insurer is able to recover the extra HK\$1.5 million from the reinsurer. In this case, for any claims exceeding HK\$5 million, the insurer will not be able to fully recover the claims payable from the reinsurer, hence insurance companies often purchase a few excess layers of reinsurance. This type of excess of loss reinsurance is typically known as *per risk* reinsurance.

Excess of loss reinsurance can also be on a *per occurrence*, or *catastrophe*, level. In catastrophe excess of loss, the insurance policy limits must be less than the reinsurance retention amount. An example of this form of reinsurance involves an insurance company writing a homeowner's contract with policy limit up to HK\$1,000,000 and then purchase catastrophe reinsurance of HK\$60,000,000 in excess of HK\$1,000,000. In such circumstances, the insurance company would recover from reinsurers in the event of multiple losses in one event such as earthquake, flood or typhoon. This is more commonly seen in the general insurance domain.

Retrocession

Sometimes, reinsurance companies themselves also resort to purchasing reinsurance and this is known as a *retrocession*. The type of reinsurance is normally offered by some other reinsurance companies. The reinsurance company who sells the reinsurance in this case is known as *retrocessionaires* whereas the ceding reinsurance company is known as the *retrocedent*.

Demand for retrocession arises when a reinsurer providing quota share reinsurance capacity to direct insurers may want to protect its own exposure to catastrophes by purchasing excess of loss protection. Alternatively, a reinsurer offering excess of loss reinsurance protection may look to protect itself against an accumulation of losses in different branches of business which may all become affected by the same catastrophe.

Financial reinsurance

Financial Reinsurance, also known as *Finite Reinsurance* or *Fin Re*, is an innovative alternative to traditional forms of reinsurance as described above, and its recent popularity has led to a significant rise in premiums devoted to this category.

Financial reinsurance is a practical risk management tool, especially useful when the motivations of the ceding insurance company are focussed not only on managing underwriting risk but also on explicitly recognising and addressing other financially oriented risks. The use of financial reinsurance, which represents a combination of risk transfer and risk financing, could add value to an insurer's risk management by providing flexibility and liquidity.

A major function of financial reinsurance is to distribute an extraordinary negative or positive expected underwriting result by the ceding company in a certain year over a longer time period. In this way, financial reinsurance stabilises the business result of the year involved. The opposite approach is to create a highly positive underwriting result for a particular year by bringing forward future earnings. For instance, the reinsurer pays a ceding commission equal to the embedded value of a portfolio which is amortised during the run-off of the business, this is effectively a loan taken and such embedded value financing is not uncommon in case of life insurance company acquisitions.

Depending on the domestic regulations governing the respective jurisdiction, insurance companies may be required to obtain approval from the relevant authority on a case-by-case basis for every financial reinsurance transaction they are looking to enter into. If there has been a material change in contract terms during the period of the contract then the insurer must reapply for approval. A typical application process involves the direct insurer describing to the authority the reasons for purchasing financial reinsurance, an analysis of projected cash flows reflecting the possible outcomes of the treaty, and descriptions of the expected impact of the proposed arrangement on actuarial statutory reserves and surplus.

In particular, underwriting risk and timing risk are important criteria for supervisory and tax authorities when deciding whether a financial reinsurance contract is reinsurance, pure loan or investment. Most of the insurance authorities require there to be a significant underwriting risk and the possibility of a loss to the reinsurer in order to acknowledge a financial reinsurance contract as reinsurance.

Underwriting risk – Underwriting risk is defined as the risk that actual claims within a period of insurance will deviate from expected claims, which equals the pure risk premium. Deviations may occur in the number and size of claims as well as in the timing of the claims events within the period of insurance.

Timing risk – Timing risk results from uncertainty about the time when claims must be paid out. This is the risk that claims will have to be paid out earlier than expected.

Research/Publications

Key players in the reinsurance field produce and release periodic research reports, many of which are available on subscription basis, on specialised reinsurance related topics including:

- Dread disease survey
- Group life market survey
- Long term and managed care
- Medical advancement and health insurance
- Casualty reports
- Underwriting system
- Worker's compensation
- Occupational disease
- Enterprise risk and capital management
- Genetics engineering
- Terrorism
- Climate change and natural disasters

and many others.

Reinsurance supervisions

The International Association of Insurance Supervisors (IAIS), established in 1994, provides the highest level of supervisory guideline on insurance issues including the practice of reinsurance.

IAIS represents insurance regulators and supervisors of some 180 jurisdictions. Its members in Asia include the following key insurance authorities in the respective region:

- China Insurance Regulatory Commission (CIRC), *China*
- Office of the Commissioner of Insurance (OCI), *Hong Kong*
- Monetary Authority of Macao (AMCM), *Macao*
- Insurance Bureau of Financial Supervisory Commission (IB), *Taiwan*
- Monetary Authority of Singapore (MAS), *Singapore*
- Bank Negara Malaysia (BNM), *Malaysia*
- Financial Services Agency (FSA), *Japan*
- Financial Supervisory Service (FSS), *Korea*
- Insurance Regulatory and Development Authority (IRDA), *India*
- Insurance Board of Sri Lanka (IBSL), *Sri Lanka*

IAIS has issued a number of principle, standards and guidelines for its insurance supervisory members to use as best practices to work towards. In particular, the Reinsurance and other forms of Risk Transfer Subcommittee has developed reinsurance guidelines both from the perspective of evaluating the reinsurance cover of primary insurers and of supervising reinsurers.

Principles

- Principle No. 6 – Principles on Minimum Requirements for Supervision of Reinsurers, October 2002

This principle identifies elements of the supervisory framework that should be common for primary insurers and reinsurers and those elements that need to be adapted to reflect the unique risks faced by reinsurers.

Standards

- Supervisory Standard No. 7 – Supervisory standard on the evaluation of the reinsurance cover of primary insurers & the security of their reinsurers, January 2002

This standard provides guidance to supervisors in assessing how insurers manage their reinsurance arrangements. Its main purpose is to ensure that the reinsurance arrangements that primary insurers conclude are fully assessed, and consequently judgment can be made on the levels of security provided by the reinsurance arrangements.

- Supervisory Standard No. 8 – Standard on Supervision of Reinsurers, October 2003

This standard provides a global approach to the regulation of reinsurers, setting out minimum requirements to help define a minimum level of acceptable security of reinsurers to ensure

market stability and ultimately policyholder protection. This standard elaborates on Principle No. 6, focusing particularly on where reinsurers differ from primary insurers.

Guidance paper

- Guidance paper No. 11 – Guidance paper on risk transfer, disclosure and analysis of Finite Reinsurance, October 2006

This paper contains guidance regarding the supervision of financial reinsurance, as initiated by the fact that in recent years various regulatory agencies have shown concerns that this form of reinsurance has been used improperly on occasion. The paper provides definitions, describes the history, functions, use, issues and supervisory approaches regarding financial reinsurance.

The Enhanced Disclosure Subcommittee of IAIS also issues several standards on disclosures covering reinsurance arrangements:

Standards

- Supervisory Standard No. 9 – Standard on Disclosures concerning Technical Performance and Risks for non-life insurers and reinsurers, October 2004: this standard deals with public disclosures that non-life insurers and reinsurers should make in respect of technical performance.
- Supervisory Standard No. 11 – Standard on Disclosures concerning Investment Risks and Performance for insurers and reinsurers, October 2005: this standard explains minimum disclosure requirements on the insurers and reinsurers about investment risks and performance.

Following the above principle, standards and guidance papers, insurance authorities set out, for their respective jurisdictions, applicable regulations and/or guidelines. In Hong Kong, under section 8(3)(c) of the Insurance Companies Ordinance, Chapter 41 of the Laws of the Hong Kong Special Administrative Region, an insurer shall arrange adequate reinsurance protection unless there are justifications not to do so.

As such, the Office of the Commissioner of Insurance (OCI) issued a Guidance Note on Reinsurance with Related Companies (“GN12”) in June 2003 to provide further guideline on reinsurance arrangements.

Disclaimer

The Education Corner is aimed at providing background information on some hot topics surrounding actuarial practice and the insurance industry, and is solely intended for actuarial education purpose, and must not be relied upon for any other purpose. In putting together the respective sections the contributors have relied on publicly available information without independent verification, apart from reviewing some of the material for reasonableness based on the contributors’ knowledge of the actuarial field and insurance industry.

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