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1 Introduction

This chapter deals with the **tools** and **techniques** put into action for **managing** and **controlling** the risks that are retained by the financial product provider i.e. insurer.

The following can be used to aid the **management and control of risk** for a financial product provider:

- diversification
- underwriting at the proposal stage – this ensures a fair price is paid for the risk
- claims control procedures – these mitigate the consequences of a risk event that has occurred
- management control systems – these reduce the exposure to risk

2 Diversification



Risk can be **diversified** within the following:

- lines of business
- geographical areas of business
- providers of reinsurance
- investments – asset classes
- investments – assets held within a class.

Diversification of business lines can be achieved by marketing a wide range of contracts insuring a wide range of risks. However, this would be **expensive** in terms of administrative systems, staff training etc. It also means that all companies are generalists and there is little scope for niche players in the market.

Companies that offer a wide range of products, can take this in their stride, and market their brand as a one stop shop for all the needs of a consumer. Alternatively, niche players who focus on a single product or service can use that to its advantage and market themselves as experts in that field, giving brand image more importance.

2 Diversification

To deal with the disadvantage, companies can use **reciprocal quota share reinsurance**, where one company reinsures part of its business to another in exchange for accepting part of its reinsurer's business. In this way each company can concentrate its marketing, sales and administrative effort on its chosen segment of the market, while still writing a wide spread of risks.

This allows companies to spread their risk exposure over a wider range of risks, thus reducing their overall **claims volatility**. For instance, companies exposed to 100% of five risks, face greater volatility than a company exposed to 50% of ten risks.

Consider two companies A and B. Company A specialises in providing annuity products and is exposed to longevity risk. Company B specialises in providing term assurance products and is exposed to mortality risk. This makes both the companies exposed to opposing risks. Thus, making it advantageous for both these companies to reinsure a part of its business with the other. This allows them to maintain their “specialist in the market” status while gaining diversification of a wider range of business.

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Underwriting at the Proposal Stage



Underwriting generally refers to the **assessment of potential risks** so that each can be charged an appropriate premium.

It gives an answer to the question as to whether the **risk is acceptable or not**, and if yes, then what level of premium should be charged for it, and any specific terms and conditions needed to be added.

The **insurer's fundamental** is to accept as many risks as possible along with charging the most suitable premium rates. In satisfying this objective, the insurer is exposed to the following risks:

- The premium rates tend to be **too high or too low** for the concerned risk.
- The premium rates may lead to **anti-selection**.

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Underwriting at the Proposal Stage

Underwriting as a risk management tool

Underwriting can be used to **manage these risks** in the following ways:

- It can protect a provider from anti-selection. Anti-selection is not fraudulent or illegal. It involves the proposer not disclosing certain information to the insurer that would enable the insurer to better price the risk, because the insurer did not ask for it. Deliberate non-disclosure in response to a question asked is fraudulent.
- It will enable a provider to classify risks into homogenous groups for which a standard premium can be charged. For life assurance the groups will be determined by at least age and gender; for general assurance a whole range of rating factors is used to determine granular data regarding the risk. Adequate risk classification within the underwriting process will help to ensure that all risks are rated fairly.
- Underwriting will enable a provider to identify risks for which special terms need to be quoted. A provider will normally aim to accept a large proportion of the business it accepts at its standard rates of premium. Accepting a greater proportion on standard terms with standard premium rates, eases the administration process of premium collection, valuation, claims handling etc. Particularly in general insurance, the insurer may simply decline risks that do not fit into its rating matrix

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Underwriting at the Proposal Stage

- For substandard risks, the underwriting process will identify the most suitable approach and level for the special terms to be offered.
 - Terms for substandard policies may be:
 - Higher premiums than standard policies for a given level of benefit
 - Lower level of benefit than standard policies for a given level of premium
 - Having exclusion causes, such as no payment on death caused due to lung diseases if the insured is a smoker
 - Deferring claim payment until more information is available
 - Refusing to accept the claim
- It will help in ensuring that claim experience does not depart too far from that assumed in the pricing of the contracts being sold. Underwriting ensures that the claims experience is similar to the claims assumed in setting the premium rates. Normally companies would consider their pricing assumptions and underwriting procedures hand-in-hand.

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Underwriting at the Proposal Stage

- For larger proposals, the financial underwriting procedures will help to reduce the risk from over-insurance. Financial underwriting is to determine whether the benefits provided by a specific policy, go hand in hand with the level of financial loss that the policyholder may bear on account of the insured event happening. It protects the insurer from anti-selection. For example, a person earning a meagre salary, applies for a life insurance policy of a massive amount, a standard check to be applied would be the ratio of the sum assured to the salary of the individual.

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Underwriting at the Proposal Stage

Life insurance underwriting process

Medical Evidence

Where the company is at risk on death or sickness under a contract, it will obtain evidence about the health of the applicant so as to assess whether he or she attains the company's required standard of health and, if not, what their state of health is relative to that standard.

For annuities and other contracts where there is only a longevity risk, the same could be done, but with a different emphasis, if the company intends to differentiate according to the health of the applicant in the terms it offers.

Providing annuities for people with compromised health is now being increasingly popular. It ensures the availability of products and fairness of the contract, for all, prioritizing these factors over the need to control risk.

People in poor health would take up annuity products that offer specialized rates to them. These rates tend to be higher than the standard rates for the same level of premium, as the number of annuity payments to be made would be comparatively lower. Annuity contracts where better rates are offered to smokers over non-smokers

3

Underwriting at the Proposal Stage

The insurer will **assess the longevity and health risks** of a prospective policyholder by:

- ☐ A questionnaire attached to the proposal document
- ☐ Asking for certain reports or clearances from the insured's doctor
- ☐ Asking the policyholder to undergo certain medical tests
- ☐ Performing specialist tests on the applicant.

The **larger the sum assured**, the **more rigorous and extensive is the underwriting process**. This allows the insurer to obtain more information about the applicant and identifying high risk applicants. This allows them to charge higher premiums but at the cost of higher underwriting expenses.

There is a need to weigh the advantages of medical underwriting against the extra costs involved.

Here the insurer may approach the reinsurer for advice.



Explain the risks of offering preferential annuity rates to smokers.

3

Underwriting at the Proposal Stage

Lifestyle Underwriting

Besides the medical state of health of the applicant, other factors that can affect the mortality or sickness risk need to be investigated, namely any risks associated with the:

- ☐ applicant's occupation
- ☐ leisure pursuits of the applicant
- ☐ applicant's normal country of residence.



Suggest factors relating to the applicant's normal country of residence that might influence mortality risk.

3

Underwriting at the Proposal Stage

Financial Underwriting

To counter the risk of over-insurance, details of the financial health of the applicant may be obtained.

Interpretation of the Evidence

The evidence obtained needs to be interpreted in terms of the standard of health required by the life insurance company. This will be done by specialist underwriters employed by the company.

The proposal form may ask questions regarding height, weight, alcohol consumption medical history etc, and is reviewed by the administration team. These questions may be answered in an ok / not ok format with respect to some simple tables prepared by the company's specialist underwriters.

Proposal forms which raise a query are scrutinised for further consideration. Most of the proposal forms are inferred with reference to a manual provided by the reinsurer. This is the technical assistance provided by the reinsurer.

3

Underwriting at the Proposal Stage

Specification of Terms

Applicants whose state of health reaches the required standard can be offered the company's normal terms for the particular contract.

Other applicants will be offered special terms, unless their state of health is such that the company will not accept them on any terms, in which case they will be declined – at least temporarily.

The main ways in which the **special terms** can be specified are as follows:

- ☐ An addition may be made to the premium that would have been charged to an applicant who did meet the required standard, commensurate with the degree of extra risk.
- ☐ A deduction may be made from the benefit, which would have been paid to an applicant who did meet the required standard, again commensurate with the degree of extra risk.
- ☐ An exclusion clause may be appended to the contract, which excludes payment of benefit claims that arise due to specified causes.

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Underwriting at the Proposal Stage

Prospective policyholders will usually **refrain from buying policies with an exclusion cause**, because when the policyholder will require cover for some reason, such as providing an income for a widow or child protection, a policy with an exclusion may not always meet his needs.

Another significant difficulty with exclusions is that they are very difficult to enforce at the time of claim. Officially recorded causes of death can be vague or ambiguous.

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Claims Control System



Claims control systems mitigate the consequences of a financial risk that has occurred. They guard against fraudulent or excessive claims.

However, the **costs** of implementing and maintaining a control system must be compared with the **benefits** gained from it.

For example:

- Most general insurers will accept small claims on the basis of a claim form and a single estimate for the necessary repairs.
- Above a monetary limit the insurer may wish to see two or three estimates, including one from a company approved by the insurer.
- At a further level, the insurer might require that damage is inspected by one of its employees or agents before remedial work is authorized.
- For the larger claims the insurer might appoint a firm of loss adjusters to manage the whole remedial program on its behalf.

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Claims Control System

Another example of a **claims control system** is the **need to manage income protection** or **permanent health insurance claims**. Here, claims management applies both at inception of the claim and during the claim:

- Before starting to make any claim payments, the insurer will need to assess the illness (or disability) of the insured to ensure it meets the conditions of the insurance contract.
- During payment of the claim, the insurer will need to regularly reassess the illness (or disability) to ensure it remains a valid claim.

The claimant needs to have a strong **incentive** to return to work. While the claim payments fulfil an important need, it is equally important that the claimant does not see the additional income as a justification for not working.

The insurer may also wish to help the policyholder recover from their illness, which may be possible by allowing partial return to work. This may benefit not only the insurer in terms of reduced claims, but also the longer-term health of the insured may be improved by entering active employment again.

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Management Control Systems

Data recording

It is important that the company holds good quality data on all the risks it insures, with particular emphasis on the risk factors identified when the product was designed or when the risk was underwritten. While this cannot change the provider's exposure to the business risks underwritten, it can assist in ensuring that adequate provisions are established for those risks and reduce the operational risks from having poor data.

Accounting and auditing

Again, good accounting and audit procedures cannot change the risks accepted, but enable proper provisions to be established, regular premiums to be collected, and the providers of finance to the provider to be reassured as to its financial position.

Monitoring of liabilities taken on

It is important to monitor the liabilities taken on by a company to protect against aggregation of risks of a specific type to an unacceptable level. Where the acceptance of risks involves the provider in new business strain, it is important to quantify the amount of new business to ensure that it is within the provider's resources.

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Management Control Systems

One of the most effective ways to control the level of new business strain brought in by a product is to establish a maximum limit on the amount of new business volume accepted.

In addition, premium rating may involve cross-subsidies from one type or class of business to another. If the business mix expected in the premium rates is not achieved in practice, the profitability of the contract may be at risk.

Options and guarantees

Care is required to monitor any options and guarantees and in particular to determine whether the options or guarantees are likely to bite.

Options are termed as 'to bite' when they have a value and there are chances that the policyholder may exercise them or when they provide higher benefits than otherwise.

Performing due diligence also helps in ensuring management control. It involves entering into an agreement to reduce risk, performing a thorough review and appraisal of an organisation in order to assess its competency to perform the agreed services.

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Risk Associated with Options and Guarantees

Risk management techniques can be used to **protect the provider against the possible adverse effects of options and guarantees** given in contracts. **Liability hedging** can be used to manage options and guarantees.

Liability hedging involves choosing **assets** which **match the liabilities** so that they move consistently with each other, thus hedging the underlying market risk that arises from the existence of the option or guarantee.

For example, the value of liabilities may be linked to some external index, such as under 'guaranteed' contracts where the movement of one or more market indices determines the amount of benefit payable in some way. To hedge such liabilities, use can be made of derivatives linked to the same index or indices. Another example would be a guaranteed minimum benefit under a unit-linked or with-profits product, which can be hedged using appropriate put options.

Use is often made of over-the-counter derivatives for hedging purposes, thereby avoiding the uncertainty and expense of 'rolling-over' short-term exchange-traded derivatives over the lifetime of the underlying contract. Guarantees and options can be hedged dynamically, that is by rebalancing the underlying hedging portfolio as market conditions change. Here liabilities are hedged by changing the underlying assets on a regular basis to retain close matching as economic conditions evolve.

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Risk Associated with Options and Guarantees

This is however difficult to execute, because of the **transaction costs** involved and rapidly changing conditions.

Hedging techniques for options and guarantees are made more difficult because the theoretical matching assets are not always available.

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Low likelihood, High Impact Risks

It is important to manage such risks in a measured way. Because **credit rating agencies** and **regulatory authorities** pay significant attention to the ability of a company to withstand rare events, there is a temptation for management to concentrate unduly on such risks at the expense of the broad range of risks accepted.

Low probability, high impact risks:

- can only be diversified in a limited way – for example production of a major product line on two sites diversifies the risk of a total loss of business premises by fire, but has attendant additional costs if a total loss by fire does not occur
- can be passed to an insurer or reinsurer, usually by some form of catastrophe insurance or whole account aggregate excess of loss cover (commonly called ‘stop loss’ cover)
- can be mitigated by management control procedures, such as disaster recovery planning.

Some such risks can only be accepted as part of the consequences of the business undertaken, and the management issue then becomes how to determine the amount of capital that it is necessary to hold against the risk event.

7

Low likelihood, High Impact Risks

Finally, a company will have determined its own risk tolerance – for example, the ability to withstand an event that might occur with a 0.5% probability within one year. This means that the company accepts that it might be ruined by a rarer event and has decided not to take such events into account in its risk management.



A company is considering purchasing farms in Africa for the production of biofuels. Explain how the company might manage the following risks:

- (i) government collapse
- (ii) fire damage to crops.

8 Risk Financing

Issues Relating to the Management of Retained Risk

Having decided to retain or acquire certain risks, it is necessary to ensure that the price accepted for the risks taken on is adequate, allows the risk-taker to continue in business, and contributes to profit.

Evaluating and pricing risk is the key issue. However, it is also necessary to ensure that all risks are actively managed, so that the expected profit materializes.

Having taken actions to control risks, it is then necessary to determine the amount of capital to hold against the risks accepted.

Adequacy of Available Financial Resources

Capital is to be held to the extent of risks accepted or retained as protection against adverse outcomes.

This might be expressed by reference to a ruin probability over a specified period, or a ruin probability over the entire run-off of the existing portfolio. The shorter the period chosen, the lower the ruin probability must be.

8 Risk Financing

When financial products provide benefits on **future contingent events**, there is little that the product provider can do to prevent the primary business risk events occurring.

General insurers can contribute to public education campaigns about security of buildings and reducing the risk of fire, and a health insurer could offer incentives to stay healthy eg free gym membership. However, there is little scope for a life insurer or benefit scheme to reduce the likelihood of the underlying risk event happening.

However, all companies **can implement control systems** to reduce the likelihood of operational risks such as financial fraud.

Financial product providers need to have a comprehensive approach to risk management to ensure that they have adequate resources to meet their obligations.

The risk management process will ensure that not only is sufficient capital available, but also that the capital is being used efficiently, and that the organization is **creating value** for shareholders and/or other stakeholders. Another important aspect is that the risk management program should also reduce the **total cost of risk**, ie the cost to the entity of all costs incurred to deal with risk including expected loss costs, disruption to business, insurance premiums, risk managers' salaries, and other items.

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