Chapter – IV

Risk Management in General Insurance

Business in India
Chapter -IV

Risk Management in General Insurance Business in India

The general insurance players are exposed to numerous risks and unless managed well, these risks could adversely affect the business performance and even their survival. The present chapter therefore aims at studying the nature and extent of internal and external risks to which the general insurance business in India is subjected to especially after the entry of the private players and the corresponding policy changes, and also the techniques adopted by the insurers as well as the insured to effectively manage their risks perceptions.

4.1 Risks in General Insurance business

Players in the general insurance business are likely to be exposed to varieties of financial and non-financial risks like capital risk, enterprise risk, asset liability management risk, insurance risk, operating risk and credit risk arising out of the nature of business and the socio economic environment in which they operate.

Financial risk

Insurance business basically being financial business in nature attracts financial risks in the forms of capital structure risk, capital (in)adequacy risk, exchange rate risk, interest rate risk, investment risk, underwriting risk, catastrophic risk, reserve risk, pricing risk, claims management risk, reinsurance risk, policy holders and brokers risks, claims recovery risk and other debtors risk. Insurance business undertakes various plans to manage the financial risk by adopting techniques like interest rate hedging and reserving
determined through financial modeling with the inherent ‘model risk’ given that such
financial models may fail to predict the real outcomes within an acceptable range of
tolerance.

**Non financial risk**

Non financial risk management has assumed greater significance in the recent years
due to (i) the growing volume of operational losses, (ii) the industry’s increasing reliance
on sophisticated financial technology with the latter’s associated probability of failure at
times, (iii) the ever increasing pace of changes in the deregulated insurance regime and
(iv) the globalization process paving the way for the entry of global players. In addition to
these, the ‘volatility’ factor which affects the future cash inflows of the general insurance
business and consequently its value, given that ‘the value of an insurance company is
the present value of its future net cash inflows adjusted for the risks it undertakes’ is the
other dimension of non financial risk the insurance business is confronted with. Studies
have proved that a major source of volatility is not related to financial risks but the way in
which the company operates. Hence the operating risk may arise either from inadequate
or failed internal processes such as employment practices, workplace safety, and
internal fraud or from external events such as external fraud and damage of physical
assets from natural disaster and other uncontrollable events.

The different types of financial and non financial risks faced by the general insurance
industry have been given in Chart 4.1.
4.2 Risk management mechanism in general insurance business

The risk management mechanism adopted by the insured in the general insurance business broadly takes the form of 'enterprise risk management', whereas that of the insurer broadly assumes the 'risk based capital management' and 'reserving'. The details of these risk management techniques may be given in the form of a chart as in Chart 4.2.
4.2.1 Risk management mechanism adopted by the insured

It is of utmost importance for any organization to minimize its exposure to risk of loss arising out of unforeseen events like the natural calamities, earthquake, flood, fire, theft, and so on. To ensure that a risk minimization and mitigation mechanism is in place that the insured need to go for an effective risk management drive. The technique available to the insured for such risk management is known as the enterprise risk management.

4.2.1.1 Enterprise Risk Management (ERM)

ERM is the process of planning, organizing, leading, and controlling the activities of an organization in order to minimize the effects of risk on an organization's capital and earnings. As regulators and markets around the world judge companies on their risk management effectiveness, ERM is rapidly becoming a standard industry practice for managing risk.
Scope of enterprise risk management

Enterprise risk management takes a vast field of loss possibility and breaks it down into a number of more manageable categories. Apart from the core financial risks inherent to the business, enterprise risk for an insured may be classified into strategic risk and operational risk as described below:

**Strategic risk**

Strategic risk occurs based on corporate decisions that have an impact over time. Growth strategy, executive decision making, mergers and acquisitions, and approaches to capital management are all areas of strategic risk. The very act of strategic planning represents an attempt to manage strategic risk, but such efforts can be greatly enhanced by an enterprise risk management approach. A simple example of strategic risk is the entrance by a player into a new product line with inadequate operational expertise. The failure to anticipate the strategic moves of competitors is itself a strategic risk. Strategic risk management may include risk-adjusted pricing, capital budgeting, hedging, investments, and risk-adjusted performance measurement through the creation and use of financial reporting systems.

**Operational risk**

Operations refer to all the activities of a company in their day to day activities. Operational risk arise out of activities that may hinder or bring a company's operations to a halt such as natural disasters, labor problems, fraud perpetrated from within the company, and data problems. In India, there is an increasing
awareness of the need to manage operational risk as it is intimately related to the other areas of risk.

Components of ERM strategy

The components of ERM strategy include planning, risk tracking and reporting, implementation and the tools of ERM implementation. The components are described as follows:

Planning

Irrespective of the company's strategy to hire a risk management team, outsource enterprise risk management, or simply work with a team of current employees; ERM begins with an audit of an organization's potential liabilities with special attention to their severity. This risk plan is reviewed periodically and adjusted in the light of changing conditions and ongoing risk management efforts. Another element of planning is to define a company's risk tolerance and propagate it to decision-makers throughout the enterprise. If a risk is highly unlikely and not particularly severe, it may be just left alone.

Risk tracking and reporting

Another key element of ERM is to track risks over time to see how well they are being managed and to deal with the trends early. Comparing them to each other is not as important as establishing a baseline that can be tracked across reporting periods. Insured need to continually remind them that just because a risk cannot be effectively quantified or compared to others does not mean it should be discounted or excluded from the ERM plan. Even if the financial impact of a risk is
difficult to measure, its occurrence can still be recorded and tracked. After the relative severity and likelihood of various risks is assessed, a mitigation plan is developed. In other cases, a mitigation strategy for one risk could actually increase the likelihood or severity of another risk, and in such case the trade-off must be examined carefully.

While ERM might increase a company's reserve or liability coverage requirements, its goal is to provide the optimum preparation for adverse events. In some cases, an ERM framework will reduce certain costs by reducing the double-counting of risks by previously undertaken risk management efforts. In any case, under ERM a broader variety of risks is likely to be considered.

**Implementation**

The insured takes into account the objectives, scope, organization, and tools of enterprise risk management to establish an ERM framework and its implementation. For an ERM strategy to be successful, it is important to prioritize the objective according to company needs.

**Tools**

Some of the specific tools that are important for implementing ERM are:

- **Risk audit guides** - These guides can be used for risk mapping of individual risks, risk assessment workshops, and risk assessment interviews. The risk assessment interviews are very effective at uncovering how the business actually works.

- **Stochastic risk models** – Stochastic model is a rigorous mathematical model used to simulate the dynamics of a specific system by developing
cause-effect relationships between all the variables of that system. This plays a vital role in quantifying the risk components, its severity and the required risk management efforts to offset the risk.

**Risk monitoring reports** - These can include regular reports to managers, Boards, and relevant external stakeholders such as the regulators and investors. This may be more formal where the reports are more likely to go to the executive committee and the board of directors and may be informal when such reports are likely to go for frequent adjustment in actions.

**4.2.1.2 Risk management process**

Having said the risk management mechanism as above, it would be appropriate to highlight the processes of risk management that may be adopted by the insured to make it more effective. Chart 4.3 which depicts the logical sequence of such a risk management process is an attempt in this direction.

**Chart 4.3: Risk management process**
Chart 4.3 clearly indicates that an effective risk management process from the insured's point of view should necessarily include:

1. Risk identification
2. Risk assessment
3. Risk avoidance and risk retention
4. Risk improvement and mitigation using appropriate techniques and recommendations
5. Implementation of the recommendations
6. Periodic review of the risk including management programs

1. Risk identification

The risk identification activity broadly involves an in-depth understanding of the industry, the areas and markets it serves, its activities, range of products, social, legal and economic environment in which it operates and other physical and natural hazards associated with the company's operations. Developing and exercising proper checklist for identifying these hazards is part of risk management process.

Risk identification is important in managing the risk, which deals with source and problem analysis as depicted in Chart 4.4. When either source or problem is known, the events that a source may trigger or the events that can lead to a problem can be investigated. For example, major explosion in a mini steel plant
may affect business continuity of the unit; the stakeholders withdrawal during a project may endanger funding of the project; fire damage caused to a chemical firm due to missing lightening arrestor may result in major material damage; flood damage to a pump station of irrigation project due to a facility located in a low lying area might delay the project completion schedules; and a delayed or missed inspections may result in failure to identify these factors.

As risk identification process involves identifying the risk factors and evaluating the potential loss that might take place, it is more important for the insured to pay special attention on the following two most important components as contained in the risk identification chart:
Maintenance procedures

The risk identification procedure must take into account the identification of the nature and extent of maintenance procedures, their regularity and the skills of the technicians undertaking the work. It is equally important to conduct nondestructive testing along with the regular maintenance testing. A study of moral factors by means of appropriate interviewing of the people in plant or by observations may be undertaken to obtain multiple indicators of moral hazards in the risk.

Physical factors

Physical factors are essentially sensory, visual signs of lack of due care and control of the working environment to avoid damage. A clean, tidy and uncluttered work environment not only denotes pride of possession but more importantly, a culture of loss avoidance. Business interruption susceptibility of an organization depends on the kind of service that the organization provides. Thus there is a need to conduct periodic hazard and operability study which will help in detecting any predictable undesirable event by using the imagination of members to visualize the ways of conceivable malfunctioning.
2. Risk assessment

Once risks have been identified, they must then be assessed as to their potential severity of loss and probability of occurrence, called 'risk quantification'. These quantities can be either simple to measure, in the case of the value of a lost building, or impossible to know for sure in the case of the probability of an unlikely event occurring. The fundamental difficulty in risk assessment is determining the rate of occurrence, i.e., the 'loss frequency'. Proper risk assessment helps the underwriter to apply judgment to the risk by securing material information and by determining the actual conditions. The process of risk assessment may be depicted in Chart 4.5

**Chart 4.5: Process of risk assessment**

- **Extent of physical damage**
- **Working conditions**
- **Consequential losses**
  - Monitoring of deviation from normal operations
  - Quantification of risk
  - Maximum probable interruption time

The risk assessment process as shown in Chart 4.5 consists of measuring the extent of physical damage, the consequential loss and quantification of risk after taking into account the maximum probable interruption time. Once risks are
identified and assessed, the techniques to manage the risk are applied to avoid or retain the risk.

3. Risk avoidance and risk retention

Risk avoidance is non-performance of an activity that could carry risk. For example, the risk of potential damage to a control room in a petrochemical complex can be avoided by making the control room blast proof; potential damage by flood to a pharmaceutical warehouse could be avoided by shifting warehouse to a higher elevation. For the insurers, avoidance may seem the answer to all risks; but avoiding risks also means losing out on the potential gain that accepting (retaining) the risk may have resulted in. Not entering a business to avoid the risk of loss also avoids the possibility of earning profits.

Risk retention involves acceptance of loss. All risks that are not avoided or not transferred are retained by default. This includes risks that are so large or catastrophic that they either cannot be insured against or the premiums would be infeasible. War is an example since most property and risks are not insured against war, so the loss attributed by war is retained by the insured. Risk retention is a viable strategy for small risks that can be absorbed and where the cost of insuring against the risk would be greater over time than the total losses sustained. True self insurance is risk retention for an insured. For example a large and financially strong firm may create a self insurance fund to which periodic payments are created. Risk retention pools are technically retaining the risk for
the group, but spreading it over the whole group involves transfer among individual members of the group. This is different from traditional insurance, in that no premium is exchanged between members of the group up front, but instead losses are assessed to all members of the group. Risk transfer means causing another party to accept the risk, typically by contract or by hedging. Insurance is one type of risk transfer that uses contracts. Risk transfer takes place when the activity that creates the risk is transferred. Other times it may involve contract language that transfers a risk to another party without the payment of an insurance premium. Liability among construction or other contractors is very often transferred this way. Other examples of risk transfer could be subcontracting a hazardous operation outside the manufacturing facility.

4. Risk reduction and control

Risk improvement and mitigation is an important task of risk management which involves methods that reduce the severity of the loss. For example, the sprinkler system designed to put out a fire to reduce the risk of loss by fire. For the risk reduction, a mitigation plan is prepared. The purpose of the mitigation plan is to describe how this particular risk will be handled and what, when, by who and how will it be done to avoid it or minimize consequences if it becomes a liability. Loss prevention in risk management further aims to eliminate or to reduce these losses. The process of risk reduction and control has been shown in Chart 4.6.
5. **Implementation of the recommendations**

Implementation of the recommendations for risk mitigation should be properly undertaken so as to ensure effective management of risk by the insured.

6. **Periodic review of the risk management programs**

Risk is a relative measure and from insurer perspective it is important to map the risk consequence with probability in a risk coordinate system. Chart 4.6 highlights the risk coordinate system.
It may be well observed from Chart 4.6 that taking into account the probability of risk occurrence and the consequences, the risk factor can be subjected to four decision making areas namely high consequences and low probability area, low consequences and high probability area, high consequences and high probability area, and low consequences and low probability area. Managing the risk in high probability and high consequence is the worst possible case. Total risk value in this case is highest, because there is increased potential of events with large consequences. Low consequence and high probability is the most common quadrant of risk management, because this is the lowest threshold of a loss which is normal in nature. These may be arising out of minor repairs, replacement and
minimum business inconvenience. Low consequence and low probability is the objective of risk based continuous improvement.

4.3 Risk management techniques adopted by the insurer

The risk management mechanism adopted by the insurer in the general insurance business broadly falls into two categories: 'risk based capital management' and 'reserving'. Whereas Chart 4.1 given before contains a brief description of the risk management techniques adopted by both the insured and the insurer, it may not be out of context to mention here again that included in the 'risk based capital management technique' category are the management role, capital and solvency margins, and risk based capital; and in the 'reserve' category of risk management techniques included are the unearned premium reserves, unexpired risk reserves, outstanding claim reserves, incurred but not reported reserves, catastrophe reserves and claims equalization reserve. Details of these techniques may be given as under:

4.3.1 Risk based capital management technique

The insurance business, unlike other financial institutions, faces unique challenges in risk management. Assuming the risks of others and guaranteeing the payments of claims based upon perils that are random and uncertain are the kind of operational risks found as additional and unique to the insurance business over and above any other risks inherent to the financial institutions in general. Though the insurance regulatory authority, i.e., the IRDA, does not undertake the responsibility of risk management of the individual players, it gives greater
emphasis on monitoring the conduct of the players in dealing with the risks to protect the interest of the customers.

In the context of risk based capital management technique, the role of board of directors and the management is worth mentioning.

**Role of the board of directors**

The board of directors of each general insurance player is ultimately responsible for the company's risk management policies and practices. In delegating its responsibility, a board of directors usually empowers the management with developing and implementing risk management programs and ensuring that these programs remain adequate, comprehensive and prudent. The board of directors should ensure that material risks are being appropriately managed. To ensure this, the board should:

1. review and approve management's risk philosophy, and the risk management policies recommended by the company's management;
2. review periodically management reports demonstrating compliance with the risk management policies;
3. review the content and frequency of management's reports to the board or to its committee;
4. review with management the quality and competency of management personnel appointed to administer the risk management policies; and

5. see that the audit regularly reviews operations to assess whether or not the company’s risk management policies and procedures are being adhered to and to confirm that adequate risk management processes are in place.

Role of management

The management of each general insurance company is responsible for developing and implementing the company’s management program and for managing and controlling the relevant risks and the quality of portfolio in accordance with this program. Although the management responsibilities of one firm will vary from another firm, the managerial responsibilities in common shall be-

1. developing and recommending the management’s risk philosophy and policies for approval by the board of directors;

2. establishing procedures adequate to the operations, and monitoring and implementing the management programs;

3. ensuring that risk is managed and controlled within the relevant management program;

4. ensuring the development and implementation of appropriate reporting system, and a prudent management and control of existing and potential risk exposure;
5. ensuring that audit regularly reviews the operation of the management program;
6. developing lines of communication to ensure the timely dissemination of management policies and procedures and other management information to all individuals involved in the process.

Capital and solvency margin

The capital for general insurance business does not mean legal capital alone but includes valuation margin available with the insurer. The reasons for holding such capital are to enable the company settle the claims, maintain dividends, and invest in potential growth opportunities and also to support other risks should there be a need. Settlement of the claims depends on the firm's solvency margins. The present solvency margin as prescribed by the IRDA called the required solvency margin (or RSM), is 20% of the net premiums or 30% of net incurred claims whichever is higher, subject to a reduction by 0.5 to 0.9 for reinsurance depending upon the insurance segment of fire, marine and miscellaneous. This formula is similar to the provisions applicable under the European Union legislation during early 1990s. The European Union legislation used a three year average net incurred claims basis for calculation of solvency margin whereas IRDA does not provide for such averaging. Besides the statutory provision, IRDA requires maintenance of the solvency margin at 150% of the level defined in the regulations as a market practice while granting
The IRDA solvency norms imply a uniform risk profile across all companies and do not consider the risks to which individual companies are exposed.

The solvency margins are calculated by deducting liabilities from the available assets. Valuation of assets and liabilities for determination of the solvency margin however is subject to several assumptions relating to the future market conditions. The solvency margin should always be positive and should be at or above the prescribed level to ensure that liabilities are met at all times. The timing of asset proceeds and discharge of liabilities is equally important. In order to achieve a higher solvency margin, measures like charging of appropriate premiums, retaining adequate reserves, investing prudently and managing risk accumulations may be undertaken by the players.

**Risk based capital (RBC)**

The RBC concept emerged in the global insurance market in the early 1960s especially in the US. At present, as a part of the RBC model, an authorized capital level (or ACL) is prescribed by the regulator to be observed by each insurer. The regulator has also prescribed corrective and remedial actions in case of any failure on the part of the insurer to observe the stipulation depending on the level of the ratio between the insurer's actual free capital and the ACL. For example, when the insurer's
actual free capital to the ACL ratio falls below 70%, the insurer shall be
totally controlled by the regulators and if the ratio falls between 100% and
150%, the regulators shall perform an examination of the insurer and issue
necessary corrective orders.

The US system of RBC has been criticized on the ground that the actions
laid down in the regulations against different action levels are rigid; the
policyholders may have to pay additional premium to service additional
capital; several other risks have not been incorporated in the system;
losses due to derivatives is not included; calculation of risk factors is
arbitrary; no consistent conceptual framework for calculation of risk
charges as factors derived from past industry experience may not be
suitable for the calculation of future distribution; management risk which is
an important component of operational risk has been excluded from the
purview of risk assessment; and the solvency levels required to be
maintained discourages conservative reserving among insurers.

Mentioned may be made that in India a system of RBC is yet to be put in
place although a debate for the purpose is on. However when such a
model is developed for use by the Indian general insurance business, care
needs to be taken to ensure optimal risk coverage by overcoming the
above said limitations associated with the US RBC model. While doing so
the developed RBC model be tested by factors such as company size,
growth rate, product range, geographical region, reliance on reinsurance and asset portfolio for the industry wide acceptability.

4.3.2 Reserving

The financial condition of an insurance company cannot be adequately assessed without sound loss reserve estimates sufficient to meet any outstanding liabilities at any point of time. The estimation process involves not only complex technical tasks but considerable judgment as well. It is important for the insurance company to understand the data before embarking on the task of estimating loss reserve which has a significant impact on the financial strength and stability of the company.

The general insurance companies apart from the general reserves maintain a number of technical reserves which can be divided into following six categories, namely, unearned premium reserves (UPR), unexpired risk reserve (URR), outstanding claims reserve (OCR), incurred but not reported reserves (IBNR), catastrophe reserves, and claims equalization reserves. A brief explanation of each of these reserves along with their significance has been given as follows;

**Unearned premium reserves (UPR)**

Unearned premium reserves is the proportion of premiums received which relates to the future period. It is assumed that the risk is uniform over the duration of the policy and the liability arising out of the risk can be met by
reserving a pro rata amount of the balance of the premium after deducting initial expenses. In the circumstances of high inflation, changes in expenses and widely fluctuating claims ratio; the expected claims liability under the unexpired risks can differ significantly from the UPR provision. If the UPR is regarded as inadequate, an additional reserve is necessary. The insurer therefore needs to create extra reserve to offset the shortfalls in the UPR by creating an additional unexpired risk reserve (or AURR).

**Unexpired risk reserve (URR)**

Unexpired risk reserve is created by the insurer to manage the risk arising out of the non receipt of future premiums. It is estimated by multiplying with the unearned premiums the ratio of the claims incurred in the year to the premiums earned in the same year. The unearned premiums also allows for inflation and changes in experience in the various risk groups and their relative proportion of the total premium. Over and above, a prudent fluctuation margin may be added to the above to minimize the impact of errors associated with the estimation process.

**Outstanding claims reserve (OCR)**

OCR is maintained by the general insurance companies to meet the outstanding liability for claims which have already been reported and not settled. The commonly used method to estimate OCR is to obtain
estimates in respect of all outstanding claims on an accounting date after taking into consideration the following:

i. the certainty of the claim;

ii. the likely time needed to complete settlements;

iii. the rate of inflation on claims costs between the accounting date and the date of settlements; and

iv. the judicial trends in claims settlements.

Incurred but not reported reserves (IBNR)

The IBNR reserve is the estimated liabilities for the unknown claims arising out of incidents occurred prior to the year end but have not been notified to the company during the accounting period. In practice, the provision for future development on known claims, which is called as incurred but not enough reserved (IBNER) is included in IBNR. The average cost of an IBNR claim often differs from that of currently reported claims. The insurance companies hence develop the ratio of average cost of an IBNR claim to average cost of reported claims, for different classes of business on the basis of historical data in order to measure the effectiveness of the IBNR reserves.

Catastrophe reserves

The catastrophe reserves are created to meet any unprecedented and/or uncontrollable risk factor affecting the insurer. These reserves are created
out of taxed income after taking into account the operating position and the
effect of provision upon the presentation of its results. Catastrophe reserve
in the long run equates the accumulated catastrophe loadings in premiums
without impacting the financial stability of the insurer.

Claims equalization reserves
Claims equalization reserves are made to smooth out the effects of year to
year fluctuations in the incidence of larger claims such as the unusual
floods in Mumbai in 2005 and in Surat in 2006. The provision is created
based on past experience of the frequency of claims and the 'probability
density function' of this risk. Claims equalization reserve is not created to
meet an inevitable liability.

Reserving provisions and IRDA
The IRDA emphasizes on uniformity in method of reserve estimations wherever sufficient
data is available. Besides, standard reporting formats have been devised to analyze
current year's transactions and to build up cumulative data for the amounts and number
of claims settled. IRDA further emphasizes on collecting all relevant information for each
class of business from all insurers so that the consolidated industry data can be used for
reserving purposes for those classes where availability of data is insufficient.
4.5 Conclusion

This chapter was developed to identify the risks to which the insured and the insurer are subject to, especially in India and the mechanism through which these risk complexions are effectively managed. The study reveals that both the insured and the insurer in India generally face risks ranging from financial to non financial in nature. The financial risks for both of them are classified as capital risk, asset/liability management risk, insurance risk and credit risk, whereas the non financial risk include enterprise risk and operational risk. The capital risk includes capital structure risk and capital (in) adequacy risk. Whereas the asset liability management risk includes exchange risk, interest rate risk and investment risk. Similarly the insurance risk includes underwriting risk, catastrophe risk, reserve risk, claims management risk and the credit risk includes reinsurance risk, policy holders and broker's risks, claims recovery risk and other debtor's risk. In the same manner the enterprise risk includes reputation risk, parent risk, competitors risk and the operational risk includes regulatory risk, business continuity risk, IT obsolescence risk, process risk, regulatory compliance risk and out sourcing risk.

The risk management mechanism found prevalent in the general insurance industry for the insured are in the form of enterprise risk management comprising of planning, risk tracking and reporting, implementation, tools and risk management. Whereas for the insurer it is in the form of risk based capital management and reserving, with the former consisting of management role, capital and solvency margins, and risk based capital and the later consisting of unearned premium reserves, unexpired risk reserves, outstanding claim reserves, incurred but not reported reserves, catastrophe reserves and claims equalization reserve.
References


ICAS Lessons and Looking Ahead to Solvency II, FSA Insurance Sector Briefing; October 2007, PP. 28-34.


