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INSURANCE COMPANIES, THEIR IMPORTANCE AND THE RISKS THEY FACE

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ABSTRACT

Insurance companies occupy an important position within the financial sector of any economy, as they are authorized entities to provide coverage against risks for individuals and institutions, as well as financial intermediaries that accept funds in the form of premiums to be reinvested in various forms of investment. Therefore, in this chapter, we will discuss the nature of insurance companies, their types, and their importance in national economies, in addition to addressing their various tasks and functions, the different forms of their administrative organization, as well as presenting the types of risks they face in their activities according to various classifications.

KEYWORDS

Insurance Companies, Risks of Individuals and Institutions, Financial Intermediary

CITATION

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1. Introduction:

The insurance activity in Algeria is considered as one of the significant economic and financial activities, because of the role it plays in the development of the Algerian economy through the different insurance companies which undertake various insurance operations with the purpose of collecting returns and capitals to invest them later. At the same time, it achieves for individuals a state of security by covering the risks insured against, and this is conducted through the insurance companies that are considered among the most important economic units forming the structure of the national economy. These companies, like any other establishment, aim at profit-making and wealth maximization in addition to continuity and survival in the market, and this is realized through the improvement of their performance by obtaining returns from insurance operations. It is to be noted, however, that there are probabilities of uncertain financial losses that may affect the stability of financial firms and their performance, and thus require an effective management to identify, evaluate, and control them. On this basis, the problem of this study can be stated as follows:

What are the risks faced by insurance companies?

In order to answer this problematic, the following sub-questions are raised:

- What is the importance of insurance companies in the national economy and what are their functions?
- What are the sources of the funds of insurance companies and who are the actors involved in them?
- How can the risks faced by insurance companies be classified?

Research Hypotheses

In the light of the above, the following hypotheses can be formulated:

- Insurance companies are one of the forms of financial institutions that aim at supporting the economic stability of the country.
- The sources of funds of insurance companies and the intervening actors are multiple.

Research Objectives

The main objective of this research is to highlight the risks faced by insurance companies, by way of:

- Classifying the risks faced by insurance companies,
- The nature of the funds and operations of insurance companies,
- The importance of insurance institutions in the national economy.

Research Methodology

In order to study and deal with the subject, we relied in this research on a set of methods:

The descriptive–analytical method: which helps narrating the ideas related to the concept of insurance, considering it as one of the forms of financial institutions that aim to support the economic and social stability of the country, through investing the savings of the insured individuals in national investment channels, and in return, providing insurance for these individuals against the risks and damages that may occur to them.

2. The Essence of Insurance Companies and Their Types

2.1 The Concept of the Insurance Company

1. Insurance companies are defined as a type of financial institutions that perform a dual role, in the sense that they are insurance institutions providing the insurance service for those who demand it, and they are also financial institutions that obtain funds from the insured, in order to reinvest them in exchange for a return (Hindi, 1994, p. 397).

2. The insurance company is also defined as a commercial institution that seeks to achieve profit, since it collects the premiums from the insured, and invests the collected funds in multiple guaranteed channels, with the purpose of providing the necessary funds, such as the payment of compensations to the insured or the beneficiaries when the insured risks occur, as well as covering the expenses of carrying out the insurance activity and realizing an appropriate profit (Nour & Shehata, 1986, p. 86).

3. The insurance company is also regarded as an intermediary that accepts the funds represented in the premiums presented by the insured, then reinvests them on their behalf in exchange for a return, and thus it can achieve a degree of profits related to the compensations expected to be paid and the premiums required to be collected (Hanafi, 2000, p. 127).

4. The insurance company is also defined as an entity authorized to conduct insurance operations in certain branches of insurance, which organize the pooling of risks within the community of the insured, and which undertakes to cover the potential financial losses of the insured in case such risks occur, within the limits of the agreement (the insurance contract) established (Assurance & Mutuelle, 2023).

2.2 The Difference between the Insurance Institution and the Banking Institution

Banks and insurance companies have different economic functions. Banks create money by converting the maturity of deposits and debts into loans and other financial assets, and by doing so, they provide credit to the economy. On the other side, insurance companies provide protection from risks to the policyholders in return for premiums; they provide this protection through pooling, diversifying, and managing risks, focusing mainly on life and savings insurance, and property insurance.

1. In terms of size, the banking sector is usually four to five times larger than the insurance sector. In the euro area, for example, the total balance sheets of banks are estimated at 330% of the gross domestic product, whereas those of insurance companies are estimated at about 70% of the gross domestic product. As for the banks' debts due in absolute values, they are higher by about fifteen times compared with the debts issued by insurance companies. Likewise, in the case of banks, their assets are dominated by loans granted, and deposits on the liabilities side. In the case of insurance companies, however, their assets are dominated by money market investments, while on the liabilities side, the commitments of the policyholders prevail, which are called "technical reserves" (Thimann, 2014, p. 4).

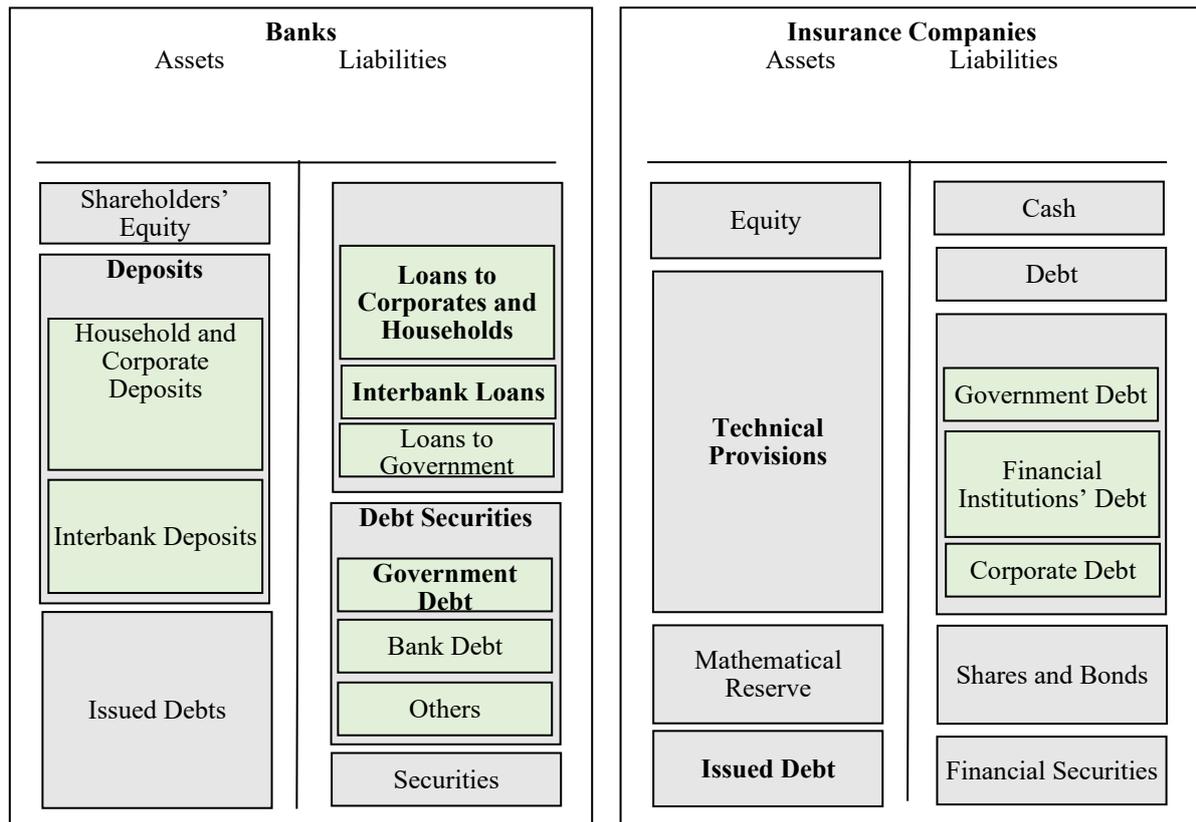


Fig. 1. A Comparison of the General Pattern of the Balance Sheet of Insurance Companies and Banks
 Source: Christian Thimann, *How Insurers Differ from Banks: A Primer on Systemic Regulation*, Working Paper N° 2014-32, Paris School of Economics, Paris, 2014, p. 04.

2.3 Types of Insurance Companies

Insurance companies are classified according to two criteria: the insurance activities they practice and their legal form.

A / Classification According to the Range of Insurance Activities:

Insurance companies can be divided according to the activities they practice into (Hindi, 1994, p. 405):

- **Life Insurance Companies:**

The insurance activity of life insurance companies includes all types of insurance related to the death or life of the insured, or those combining the two (mixed insurance).

- **General Insurance Companies:**

General insurance companies specialize in insurance of property and civil liability towards third parties. Property insurance usually covers fire and theft risks, and also transport insurance of various types, where the insurance policy covers the risks to which the goods shipped on those means are exposed. As for liability insurance, examples include motor insurance, where the insurance amount is paid as compensation for losses suffered by third parties or their property.

- **Health Insurance Companies:**

These are companies specialized in issuing insurance policies that cover the treatment costs of the insured. In many cases, the policy stipulates that the insured must cover a minimum part of his treatment costs, while the insurance company pays the exceeding part.

- **Comprehensive Companies:**

These are non-specialized companies in a certain type, as they issue all the types of insurance policies issued by the previous three types.

B / Classification According to the Legal Form of the Company:

Insurance companies are classified according to this form into:

Joint-Stock Companies:

1. In joint-stock or shareholding companies, ownership is in the hands of the ordinary shareholders, who elect the board of directors that manages the company, and who have the right to the net profit it achieves (Hindi, 1994, pp. 405–406). They are considered one of the most widespread forms of insurers (insurance companies) and the most suitable for practicing insurance from the economic and technical side (Al-Hansi & Hammouda, p. 79).

2. Fund Companies:

These companies are very similar to investment companies, but they do not issue shares, as subscribed insurance policies replace them. Their management is entrusted to experts specialized in the field of insurance, since the returns of their investments have a great effect as they cover the rise in the cost of insurance compared to joint-stock companies (Hanafi & Qaryaqs, 2000, p. 127).

Cooperative Societies:

1. This means an association composed of persons united by the same profession or working for the same employer. These associations are based on the idea of cooperation between a group of people bound by one tie (Deif, 1999, p. 5). They are established with unlimited capital, and the responsibility of each member is defined according to the value of the subscription he pays.

2. One of the most prominent of these associations is *Lloyds* in Britain, which operates throughout the world. The legal form of this group appears as if it were a union or body that organizes the members, where they work in a small group consisting of 10 or 20 members or more covering a certain risk, and there is a board of directors that manages it (Hindi, 1994, p. 408).

We can distinguish between these forms: joint-stock companies have a board of directors that manages them, fund companies are managed by experts specialized in the insurance field, while cooperative societies are managed by the subscribers themselves.

Governmental Insurance Bodies:

Governments intervene in the insurance market to establish governmental projects when private enterprises fail or their owners abstain from practicing certain types of insurance (Salama, p. 182). Governments may intervene to cover war risks, earthquakes, volcanoes and other large risks, so the State acts as the insurer, either carrying out the insurance role itself or assigning this work to another insurance body. The aim is social reform, fair distribution of income, and protection of individuals from poverty and incapacity (Heikal, 1968, p. 26).

2.4 The Importance of Insurance Institutions in the National Economy

Insurance institutions play a great and significant role in the field of the economic progress of the state, regardless of the economic pattern it follows, and the importance of insurance companies in the national economy is reflected through the following:

Collecting national savings:

Insurance plays an important role in increasing the rates of saving, as insurance companies together with banks represent the main vessel for national savings, which guarantees the mobilization of these savings to finance national development projects. In addition, insurance plays an important role in protecting the national wealth (Rizq, 2014, p. 270).

Increasing productive efficiency:

Insurance enterprises perform an important role in preserving the productive life of the individual and ensuring it for others, and this in turn leads to spreading the spirit of reassurance among business owners and workers in all economic sectors, which leads to increasing the productive efficiency of businessmen and workers and consequently the stability of projects. Insurance helps to eliminate the element of uncertainty from the life of projects, businessmen, and workers, and spares them the huge losses that may destroy these projects without the existence of insurance that covers the big risks in all aspects of the project (Shaker & Ammar, p. 6).

Preserving capitals:

Insurance companies compensate the losses that hit capitals represented in the investments of the national economy so that this does not result in the loss of their productivity or the reduction of this productivity or its suspension, especially since these investments are usually of high relative scarcity, and of extreme importance for economic development in underdeveloped and developing countries (Salama, p. 24).

Risk management:

Insurance companies act as a risk manager practicing its activity for the benefit of both individuals and companies. The risk manager, after analyzing the risks of the client, is the one who proposes to him the most suitable method to distribute them between those which he must keep for himself (self-insurance) and those which must be transferred (insurance) (Ewald & Thourot, p. 18).

Developing means of prevention and accident avoidance:

Insurance enterprises work on developing means of prevention and accident avoidance or their reduction, as they spend large amounts on researches related to studying the causes of accidents and working to avoid them as well as to reduce the financial losses resulting from them, and spreading the necessary awareness for that, which in turn leads to reducing the recurrence of accidents and the losses that individuals and projects are exposed to and its effect on society and its individuals and its growth and progress.

Achieving social stability:

The insurance activities undertaken by enterprises or institutions, whether private or public, play a great role in achieving social stability for the individuals of society by providing the factors of security and reassurance against any calamities. Social stability is the outcome of the economic stability resulting from compensating the insured for the losses he sustained, or part of them when the damage falls upon him. Thus, insurance enterprises of different kinds play a very important role in achieving the growth and economic progress of society as a whole as a result of laying the foundations of social and economic stability for the individuals and families of this society (Atiya, p. 428).

Creating job opportunities:

Insurance enterprises represent an important economic sector that absorbs a large number of manpower, which leads to raising the percentage of employment in society, since the insurance sector is one of the technical sectors that can contribute effectively to maintaining a certain level of employment and fighting unemployment through the job opportunities it provides to many. Likewise, the continuous growth and development of insurance enterprises is accompanied by a similar growth in their ability to absorb a larger number of manpower (Sayed, 2015, p. 88).

Supporting the balance of payments:

The existence of large insurance companies in the local market makes them able to provide insurance markets outside the economy with insurance covers, through selling shares of reinsurance, and this represents an increase in foreign demand for local products (intangible exports). It also reduces the leakage of the premiums paid for reinsurance outside the country (Zaher & Dribati, 2011, p. 149).

3. The Funds of Insurance Companies, Their Operations, and the Interveners in Insurance Operations

3.1 The Nature of the Funds and Operations of Insurance Companies

The sources of the funds of insurance companies are multiple, and their activities vary as follows:

First – The nature and sources of insurance companies' funds:

Insurance companies depend in financing their operations mainly on their capital and their reserves retained from profits, and they rarely resort to borrowing from the financial market. Rather, they depend on self-financing sources by retaining a large percentage of their profits in the form of free reserves and technical reserves (Abdelhamid, 1970, p. 4).

The resources of insurance companies consist of the following sources (Hanafi & Qaryaqos, 2014, pp. 381–383):

Shareholders' funds and rights:

They are represented in the paid-up capital and the capital reserves formed by the insurance company from the retained profits, either to strengthen its financial position or to face unexpected circumstances in the future, such as disasters. These funds are considered the last margin of safety for policyholders to obtain their insurance entitlements. These funds represent a very small percentage of the volume of funds directed to investments in insurance companies.

Funds of policyholders' rights:

They are the funds accumulated as a result of collecting insurance premiums, and these funds are divided into two groups:

Rights of life insurance policyholders:

They are called the technical provisions for life operations and fund formation, and they include technical provisions. This provision is considered the most important source of life insurance funds, and it is a long-term provision due to the long period of maturity of this type of insurance policies. The funds of this provision increase year after year whenever the new issuances of life insurance policies increase.

Funds of general insurances:

They are represented in the following provisions:

Provision for unexpired risks:

It consists of the amounts withheld from the premiums of general insurance policies paid in advance for coming years to cover the unexpired risks in the future for the issuances of this year. Although these funds by their nature are considered short-term funds because most general insurance policies are annual policies, they increase and accumulate year after year, especially as the new issuances of general insurance policies increase, so they turn into a source for long-term investments.

Provision for outstanding claims:

This provision consists of the funds withheld for the accidents that occurred during the current year but were not settled or not yet paid, but they will be settled and paid in the next financial year or years. These funds accumulate as new issuances increase and turn into long-term investments by their nature.

Provision for fluctuations in loss ratios:

This provision is by its nature in the years of good results, to face any unexpected fluctuations that may occur in the future as a result of the increase of the actual loss ratios over the expected loss ratios for each branch of general insurance separately. It is a right of policyholders as the obligations of insurance companies toward them increase in the bad years of disasters. Thus, this provision is used to cover their big obligations in these years. Insurance companies should not form this provision annually, but it must be only in the years of good results.

Funds not related to the insurance activity:

These funds are called the other non-technical provisions, which are allocated to face certain losses or bad debts, and these funds consist of the amounts due to insurance and reinsurance companies, producing agents, balances of any payable current accounts, or various creditors. These funds are considered short-term funds, and represent a very small percentage compared with the other funds resources accumulated at the insurance company.

Insurance Experts:

According to Article 269 of Ordinance 95-07 related to insurance, an expert is every person (whether natural or legal) qualified to provide service .

Second – The main operations in insurance companies

1. From the insurance contract arises the right of the insurance company to collect the premiums from the insured persons and its obligation to pay compensations in case the insured risk occurs. Premiums are the main source of revenues of insurance companies, while compensations are the main use of these revenues. Insurance companies achieve profits by increasing what they collect of premiums over what they pay of compensations. They also invest their surplus funds in various fields that provide them with income that works to increase their revenues. Accordingly, the main activity in insurance companies is represented in the following operations (Abdelhamid, 1970, p. 9):

Issuance of insurance policies:

Insurance companies strive to obtain insurance operations and to raise awareness of the services they provide. In this regard, they depend either on the direct contact of clients with them, or through their agents in different regions, as these contact the public and encourage them to enter into various insurance operations and introduce them to its benefits.

The issuance of insurance policies that cover different risks for the benefit of the insured, in return for premiums that become due to the company as soon as the policy comes into effect, results in obligations. The value of these premiums is determined according to different factors, including the type, the duration, and the amount of the insurance.

Payment of compensations:

Insurance companies pay the compensations due to the insured for the risks that materialized, from the proceeds of these premiums. These companies use agents and producers to sell their services to the public in general, with the aim of introducing the benefits of insurance and attracting the largest possible number of clients.

Investment:

Insurance companies invest the surplus funds beyond their needs in multiple fields with the aim of increasing their revenues. These investments usually take the form of real estates, loans, securities, or fixed deposits in banks.

Reinsurance:

Since insurance companies are exposed to bearing losses that may be too heavy for them, in case the insured risk occurs, we find that these companies cooperate among themselves with the aim of mitigating the burdens of these losses when they materialize. This is done through reinsurance, which aims at distributing the risk that one company may be exposed to over a number of companies, in implementation of the principle of cooperation in insurance operations.

Calculation of premiums:

At the level of insurance companies, the calculation of the value of the premiums due for the various insurance operations is done. This process includes the collection of premiums according to the contracts signed with the insured, and the investment of the proceeds accumulated from these premiums in the investment aspects specified by the law regulating these companies (Eid & Khalifa, 1992, p. 237)

3.2 The interveners in the operations of insurance companies

Insurance intermediaries

The insurance branch, under Law No. 95-07 relating to insurance, has come to include the term *intermediary* in insurance, which is a new concept in Algerian law. Both the insured and the insurance company may resort to qualified persons to conclude contracts, who are the insurance intermediaries through whom the largest number of clients may be reached. The adoption of insurance intermediation activity opened the door for the private sector to practice this activity after obtaining accreditation. Article 252 initially enshrined two parties practicing the insurance intermediation activity: the general insurance agent and the insurance broker.

The general insurance agent:

1. The Algerian legislator defined the general insurance agent in Article 253/1 of Ordinance 95-07 relating to insurance, which stipulates that: "*the general insurance agent is a natural person who represents one or several insurance companies under an appointment contract that includes his accreditation in this capacity*" (Ordinance No. 95-07, art. 253).

2. The general insurance agent is the person who, in return for a material fee, represents the company and sells and markets insurance policies on behalf of the company. He undertakes all the characteristics of insurance operations as a representative of the company. His task is to provide the insured with correct

insurance information and to inform them of the necessity of covering risks by the insurance policies issued by these companies (Zitouni, 2022, p. 20).

The insurance broker:

1. The Algerian legislator defines him under Article 258 of Ordinance 95-07 as follows: *“the insurance broker is a natural or moral person who practices on his own behalf the profession of intermediation between the applicants of insurance and the insurance companies for the purpose of underwriting the insurance contract, and the insurance broker is considered the agent of the insured and responsible toward him”* (Ordinance No. 95-07, art. 258).

2. From here, we can conclude that the profession of insurance intermediary is the act of mediation between the clients desiring to obtain an insurance contract and the insurance companies in return for a specific percentage he receives for the intermediation (Qarash, 2009, p. 76).

3. Article 259 of the same above-mentioned law provides: *“the profession of the insurance broker is a commercial activity, and as such, the insurance broker is subject to registration in the commercial register as well as to the other obligations imposed on every trader”* (Ordinance No. 95-07, art. 259).

4. Therefore, the insurance broker is that natural or moral person who represents the applicant of insurance during the stage of concluding the contract, as he studies the request and determines the appropriate insurance coverage for the client’s requirements and negotiates with the insurer to reach the appropriate conditions to cover the risk desired to be insured, and agrees on the premium corresponding to the risk. He also negotiates with the insurer (the insurance company) in order to settle the loss resulting from the occurrence of the insured accident. This is in direct insurance, but in reinsurance he may represent the direct insurance company in negotiating with the reinsurer to conclude the agreements and settle the rights arising therefrom (Shukri, 2012, p. 312).

5. The Algerian legislator considered, according to Article 259 mentioned above, the profession of insurance broker a commercial work subject to the conditions that every trader is subject to, as well as the obligations imposed on this latter. The trader is also obliged to keep commercial books and organize them according to the set rules, and preserve them for a certain period according to the provisions of commercial law. In case of not keeping them in a regular way, they cannot be presented as evidence in case a dispute arises in commercial matters (Ben Mehidi, 1996, p. 36).

Banks

1. The bank is considered a financial institution whose main operations focus on collecting the money surplus to the needs of the public or the public enterprises for the purpose of lending it to others. Thus, it deals in loans and credit in order to obtain other people’s money to invest it in securities (shares and documents). As for financial institutions, they are institutions that practice banking operations and participate with banks in this, without possessing the capacity of a bank (Qandouz, 2015, p. 56).

2. The practice of insurance banking in Algeria was, according to Article 53 of Law 06-04 amending Article 252 of Ordinance No. 95, whereby the second paragraph of this article stipulates: *“insurance companies may distribute insurance products through banks and financial institutions and similar institutions and other distribution networks”* (Ordinance No. 95-07, art. 259).

3. Experts, average adjusters, and actuaries: (Ghafsi, p. 32). The activities of the expert, the average adjuster, and the actuary were defined in Articles 270 and 270 bis of Ordinance 95-07 as amended and supplemented by Law 06-04 relating to insurance. Insurance and reinsurance companies resort to qualified persons accredited by the Association of Insurance Companies, represented in the “Algerian Union of Insurance and Reinsurance Companies,” in various fields of expertise according to the provisions of Decree 07-220 dated July 14, 2007.

The causes, the nature, and the extension of damages, their evaluation and the verification of the insurance guarantee.

Average Adjusters :

According to Article 270 of Ordinance No. 95-07 relating to insurance, an average adjuster is considered every qualified person who provides the service in the field of surveying and searching for the causes of the occurrence of damages, losses, and averages related to ships and insured goods, and to provide recommendations concerning precautionary measures and prevention from damages.

Actuaries:

According to Article 270 of Ordinance No. 95-07 relating to insurance, an actuary is considered every person who undertakes economic, financial, and statistical studies with the purpose of preparing or modifying insurance contracts. He evaluates the damages and costs of the insurer and the insured, determines the subscription prices while ensuring the profitability of the company, follows up the exploitation results and monitors the financial reserves of the company.

4. The classification of the risks facing insurance companies**4.1 Classification of the International Association of Insurance Supervisors (IAIS):**

A specific classification of the risks of the insurance company was proposed by “the International Association of Insurance Supervisors” in its document entitled (*On Solvency, Solvency Assessments and Actuarial Issues: An IAIS Issues Paper*), where it classified the types of risks to which the insurance company may be exposed into three main categories (IAIS, 1999, p. 12):

- Technical risks;
- Investment risks;
- Non-technical risks.

First – Technical Risks (Liability Risks):

Technical risks arise directly from the type of the insurance institution dealt with, and they differ according to the branch of insurance. They originate due to factors beyond the scope of the company’s service activities, and often the company has weak influence over these factors. The effect of such risks—if they occur—is that the insurance company may not be able to fully meet its guaranteed obligations by using the funds established for this purpose, either because of the repetition of damages and their high amounts, or because of administrative expenses exceeding what was expected.

When looking at technical risks, it is worth distinguishing between “current risks” and “special risks.”

Current risks:

The current risks consist of the following elements:

- The risk of inadequate pricing or miscalculations leading to reducing the amount of premiums in a way that prevents covering the insurance expenses related to damages, their processing and management.
- Deviation risk, that is the risk arising when the actual development of the frequency of damages, mortality, interest rates, inflation, and so on, does not correspond to the rules of premium calculations.
- Error risk, that is the risk depending on the quality of the calculation rules, arising because of the lack of knowledge regarding the development of the expected insured risks.
- Valuation risk, meaning the risk of the inadequacy of the technical reserves to meet the obligations of the insurance company.
- Reinsurance risk, i.e., the risk of inadequate reinsurance coverages or the failure of reinsurers to pay their share of the overall obligations (or the sustained damages) evaluated on a gross basis.
- Operational expense risk, that is the risk of current or future expenses exceeding—to a large extent—the corresponding amount estimated using the calculation rules.
- Risks linked to large or catastrophic losses, or the accumulation of losses resulting from one single event.

Special risks:

As for the special risks, they include the following:

- The risk of excessive or unbalanced growth, leading to a rapid increase in the claim ratio or the aggravation of the expense ratio.
- The risk of liquidation, meaning that the insurance funds become insufficient to meet all obligations in the cases of cessation or liquidation of most or all the activities (previously underwritten by the company).

Second – Investment Risks (Asset Risks):

Investment risks are related to performance, returns, liquidity, and the structure of the insurance company’s investments. Such risks can have a significant impact on the asset side of the balance sheet and on the overall liquidity of the company, and they may also lead to excessive indebtedness or insolvency.

Investment risks are classified as follows:

- The risk of decrease in value, that is, the risks linked to the decline in the value of investments due to various changes in the capital markets, or changes in exchange rates, or the non-payment by the insurance company’s debtors (such as credit and market risks).

- Liquidity risk (IAIS, 2010, pp. 17–18), i.e., the risks arising when the insurance company cannot make the investments (assets) liquid in a way that matches the maturity of its financial obligations.
- Matching risk, i.e., the risks arising when the future cash flows generated from the assets do not coincide with (or do not cover) the required cash flows of the corresponding liabilities in an adequate manner.
- Interest rate risk, i.e., the risks associated with the decline in the prices of fixed-interest securities as a result of the increase in the market interest rates, as well as the reinvestment risks related to the decline of the market interest rates.
- Valuation risk, i.e., the risk resulting from evaluating the investments at a high and disproportionate price.
- Participation risk, meaning the risk linked to the holding of ownership or a financial interest in other companies, and the possibility of being affected by the financial difficulties of these companies.
- Risks linked to the use of derivative financial instruments, especially those of credit, market, and liquidity risks associated with such instruments.

Third – Non-Technical Risks:

Non-technical risks faced by insurance companies include all types of risks not included in the two categories of technical risks or investment risks, such as exploitation risks, reputational risks, and regulatory risk (IAIS, 2010, p. 18). Among the non-technical risks are the following:

- **Management risks**, including risks associated with an unqualified management or a management with criminal intentions.
- **Risks linked to guarantees in favor of others**, i.e., the potential pressure on the economic capacity of the insurance institution resulting from a guarantee request submitted for the financial obligations of a third party.
- **General business risks**, i.e., unexpected changes in the legal conditions governing insurance undertakings, changes in the economic and social environment, as well as changes in the form of business and the cycle of general activities.

4.2 Classification of the International Actuarial Association (IAA):

Within its report issued in February 2002, the Working Group of the International Actuarial Association on financial solvency proposed the following system as a comprehensive classification of the risks of insurance companies (IAA, 2002, p. 20):

- Underwriting risk,
- Credit risk,
- Market risk,
- Operational risk,
- Liquidity risk.

First – Underwriting Risk:

Insurance companies bear the risks arising from the insurance contracts underwritten, and the risks within the category of underwriting risk are related both to the damages covered through a specific branch of insurance (fire, death, car accidents, storms, earthquakes, etc.), and to the specific operations linked to the conduct of insurance business. The Working Group focused on the general risks applicable to most types of insurance, which include (Kawatkar & Basu, 2003, p. 218):

- **Underwriting process risk:** the risk arising from exposure to financial losses linked to the selection and acceptance of the insured risks.
- **Pricing risk:** the risk that the prices charged by the company within insurance contracts ultimately prove inadequate to support the future obligations arising from these contracts.
- **Product design risk:** when the company faces the risk of exposure, under its insurance contracts, to unexpected risks at the stage of designing and pricing the insurance contracts.
- **Claims risk:** the risk of the occurrence of a number of claims or the settlement of compensations exceeding expectations, leading to unexpected losses.
- **Economic environment risk:** occurring due to changes in the social and economic circumstances that negatively affect the company.
- **Net retention risk:** the risk of exposure to losses due to catastrophic or concentrated claims, resulting from an increased retention of risks within the company.

- **Policyholders' behavior risk:** since the policyholders of a given insurance company may act in unexpected ways, with negative impact on the company.
- **Reserving risk:** the risk of inadequacy of the reserves recorded in the financial statements of a particular insurance company to meet the obligations toward policyholders.

Second – Credit Risks:

These are the risks of default and of changes in the credit rating of issuers of securities associated with the insurance company, including reinsurers, companies in which the insurance institution has invested, in addition to intermediaries.

This category of risks includes (IAA, 2002, p. 20):

- **Business credit risk:** the risk of the counterparty failing to perform its obligation, including the risk of reinsurer's inability to meet its obligations toward the company under the reinsurance contract.
- **Credit risk of invested assets:** the risk of failure to make the contractual payment of obligations, or the negative changes in the creditworthiness of the invested assets.
- **Political risk:** the risk of changes in government policies or procedures that affect the creditworthiness of financial instruments held by the insurance company.
- **Sovereign risk:** the risk of default or negative change in the creditworthiness of securities issued by governments or governmental entities. Although sovereign risks may be included with the credit risks of invested assets, they are often distinguished separately due to their significance.

Third – Market Risks:

These risks arise from fluctuations in asset market prices. Market risk includes exposure to movements in the level of financial variables such as securities prices, interest rates, and exchange rates.

This category of risks includes:

- **Interest rate risk:** the risk of exposure to losses resulting from fluctuations in interest rates.
- **Equity and real estate risk:** arising from fluctuations in the market values of shares and other assets.
- **Currency risk:** relating to relative changes in currency values leading to a decrease in the value of foreign assets or an increase in the value of liabilities denominated in foreign currencies.
- **Basis risk:** arising because the returns on instruments of varying credit quality, liquidity, and maturity do not move together, exposing the company to independent market value variations unrelated to liabilities.
- **Reinvestment risk:** consisting in the decrease of returns on reinvested funds below the expected levels.
- **Concentration risk:** arising from increased exposure to losses due to concentration of investments in a geographical area or in another economic sector.
- **Asset-liability management risk:** since fluctuations in interest rates and inflation rates have different effects on the values of assets and liabilities, and the timing or amount of cash flows of the assets and their corresponding liabilities may differ, which exposes the insurance company to the risk of asset-liability mismatch.
- **Off-balance-sheet risk:** represented by the changes in the values of contingent assets and liabilities, such as swaps, which do not appear in the balance sheet.

Fourth – Operational Risks:

1. There are many definitions of operational risks, among them the one used by the "British Bankers' Association," which was adopted by the Basel Committee on Banking Supervision as follows: "Operational risks are the risk of direct or indirect loss resulting from inadequate or failed processes, people and systems, or from external events" (Utz, 2008, p. 53).

In recent years, it has been widely agreed that operational risks are among the major risks that are difficult to identify and measure, and which include:

- **Human capital risks:** including the failure to attract and retain adequately qualified employees.
- **Administrative control risks:** the risk that an insurance company fails to possess adequate administrative discipline or internal control, leading to inappropriate actions by the company or its representatives.
- **Systems risks:** the risk of deficiencies in information technology systems that result in weakened ability of the insurance company to handle normal operations.
- **Strategic risks:** arising from the company's inability to implement an adequate business plan, make decisions, allocate resources, and adapt to changes in its business environment.

Fifth – Liquidity Risks:

1. These are risks inherent to the financial services industry. With respect to insurance activity, liquidity risk refers to the exposure to loss in the event of insufficient liquid assets available to meet the cash flow requirements to satisfy policyholders' obligations as they fall due (IAA, 2004, p. 32). They include:

- Liquidation value risk: the unexpected need for cash in terms of timing or amount, which requires the liquidation of certain assets, and where market conditions lead to loss in realized value.
- Subsidiary risks: the risk of difficulty in generating profits in the subsidiary, or that the latter may create pressure on the parent company resulting in the drain of its financial or operational resources.
- Capital market risks: such as the risk of the company's inability to obtain adequate external financing from outside markets.

Sixth – Event Risks:

These are risks beyond the institution's control, which may have a significant negative effect on it. Within this category are included the following:

- Legal risks: the risk of unexpected lawsuits, or that adverse judgments could obstruct or negatively affect the company's operations or condition.
- Reputation risk: arising from negative publicity, whether true or not; leading to a reduction in the client base, increased cost of lawsuits, and reduced revenues.
- Catastrophe risk: whereby major external events such as earthquakes, fires, and floods can negatively impact the company's systems and hinder its ability to manage operations in an orderly way.
- Regulatory risks: arising from legislative measures, tax changes, and court decisions that result in changes in market conditions and the company's competitiveness.
- Political risks: risks resulting from the implementation of certain government policies, such as nationalization or expropriation, or from specific events, such as wars or disturbances that affect, in one way or another, the ability of clients to fulfill their obligations at maturity and in their determined value (Boushloush, 2015, p. 74).

4.3 European Commission Classification

1. The European Commission provided a classification and description of the different risks that insurance companies may face at various levels, and how they appear in the different areas of the insurance process, where it classified the risks faced by insurance companies into three different levels (KPMG & European Commission, 2002, p. 19):

- Risks arising at the company level;
- Insurance industry risks (systematic risks);
- Local/global economy risks (systemic risks).

Table 2. Classification of Risks Faced by Insurance Companies According to the European Commission

Risks Facing Insurance Companies		
Risks of the Economy (Local/Global)	Risks of the Insurance Industry (Systemic Risks)	Risks at the Company Level
Risks of fluctuations in the market value of investments	Legal risks	Underwriting risks
Risks of environmental changes	Market change risks	Credit risks
Risks of social changes		Reinsurance risks
Risks of the economic cycle		Operational risks
Risks of the inflation rate		Liquidity risks
Risks of the interest rate		Solvency risk
Risks of the exchange rate		Hedging risk
Risks of technological changes		Other financial risks

Source: Prepared by the student based on the European Commission report.

First – Risks Arising at the Company Level:

They are themselves divided into:

Underwriting Risks:

Underwriting risks are divided into: net underwriting risks, which are risks related to the random fluctuation of losses, and underwriting management risks, which are associated with the company's specific underwriting procedures.

Net Underwriting Risks:

The main risks associated with insurance business are that the current cost of claims resulting from priced and concluded contracts differs from their expected amounts. This risk arises when the insurance company receives a small premium on the risks it agreed to cover, and thus does not have sufficient funds to invest and pay claims, or when claims exceed those expected. This can occur for the following reasons:

- **Misestimation risk:** expectations concerning losses are based on inadequate knowledge of the loss distribution, or because the underlying assumptions are wrong. This may be due, for example, to sample selection error or lack of experience with new insurance risks. Such risks can be mitigated to some extent through diversification of risks.

- **Random deviation risks:** expected losses deviate negatively because of random increases in the frequency and/or severity of claims, or because losses fluctuate around their mean; causes of this type of deviation, for example, include one event generating multiple losses (accumulation in the case of natural disasters), or that incurring a loss leads to other events (for example, infectious diseases in health insurance, or a fire affecting nearby industrial property, leading to increased business interruption claims, or group life insurance).

The importance of this type of risk within an insurer's portfolio depends on various factors, such as the number of risks covered, the distribution of probabilities of claims incurred, and the maximum expected losses. This risk is regularly reduced through pooling, i.e., gathering as many homogeneous and independent risks as possible in the portfolio.

- **Change risk:** negative deviation of potential losses due to unexpected changes in risk factors that led to increases in the frequency and/or severity of losses or payment patterns (for example, changes in legislation, technological changes, social and demographic changes, medical factors, and changes in climate and weather patterns). Again, diversification of the reinsurer's business portfolio may help mitigate this type of risk.

- **Reserve (allocation) risk:** in addition to the insured risks themselves, there are derivative risks resulting from the reserving process at the level of the insurance company. This risk consists in the inadequacy of technical reserves to meet the obligations of the reinsurer (reserve risk); sufficient data on the historical development of claims can limit the scope of this risk and mitigate its harm through sound actuarial estimation of provisions for incurred claims.

It should be noted that this risk can rarely be fully controlled, even with advanced actuarial estimation methods, due to the uncertainty inherent in insurance (and reinsurance) business.

Underwriting Management Risks:

Exposure to deviation risks related to net underwriting risks depends on the company's specific insurance procedures directed at controlling the quality of underwritten risks, cautious pricing of premiums, degree of exposure, and ability to cover risks.

Bad underwriting decisions have a direct effect on the company's profitability, because of the inadequacy of the premium amount to cover the level of accepted risks, claims expenses exceeding expectations, and the need to liquidate assets earlier than expected to finance claim payments.

Diversification of risks and avoiding accumulation and excessive concentration of losses allow cautious evaluation by underwriting managers, who must have adequate training and sufficient experience to assess the degree of exposure to risks, and they must also recognize the adequacy of their reinsurance program and ensure its compatibility with the nature and objectives of their business.

Credit Risks:

Credit risk is the risk associated with the non-collection of receivables due to the insurance company from a third party, which may be due to debtors failing to pay insurance premiums due either directly or through intermediaries (Comité Européen des Assurances, 2006, p. 9). The failure of major reinsurers will cause serious financial difficulties for the direct insurer, because of reinsurers' inability to meet their financial obligations, representing the main scope of credit risks for non-life insurance companies.

Another area of credit risks is on the investment side, where losses may be incurred if the counterparty defaults. In addition, if the counterparty's credit rating is downgraded, this will lead to a decrease in the value of the investment.

Reinsurance Risks:

The size and quality of reinsurance purchased determine the level of protection available to the insurance company, since purchasing inadequate coverage can lead to financial difficulties in the event of large and unexpected claims (European Commission, 2002, p. 17). Accordingly, it must be acknowledged that the inadequacy of the reinsurance program is considered a major risk.

Operational Risks:

Operational risk is a risk related to internal deficiencies including managerial inefficiency, mis-selling, fraud, criminal intent, and errors in systems and processes. Underwriting management is only a specific part of operational risks, as operational risks are interconnected with all other risk factors within the insurance company.

Investment (or Market) Risks:

Investment risks at the company level are directly related to investment management, where investments are purchased by the insurance company to finance claims expected to be paid in the future. Hence, it is necessary that there be good control and management of risks within the portfolio in order to limit the risks of poor performance and returns. There are also external factors such as market value fluctuations that determine investment performance.

Liquidity Risks:

Liquidity risk is the risk of the company's inability to liquidate its assets in order to meet its financial obligations adequately (European Union, 1997, p. 6). This risk arises from the marketability of certain assets, delays in the sales process, and the need to accept price reductions.

Matching Risk:

Matching risk is the risk of inadequate alignment between liabilities and assets. This risk is often driven by currency mismatches and mismatches in the timing of cash flows on both sides of the balance sheet, in addition to interest rate and inflation risks, which is of great importance in life insurance. In the case of asset-liability mismatch, this may lead to incurring investment losses resulting from the need to liquidate certain assets in order to pay claims when they fall due. An example of this in life insurance is the need to match the annuity obligation with investments of a similar payment pattern, such as fixed-income securities.

Expense Risk:

Expense risks represent a particular threat for life insurance companies, which bear high fixed costs that need to be recovered by including the expense in the collected premiums. Thus, recovering these costs depends on the level of services sold by the life insurer.

In life insurance as well, operational and administrative expenses may also rise due to the extension of insurance contracts beyond the expected duration taken into account when calculating premiums. As for non-life insurance, the main driver of risks is the substantial cost of legal expenses for claims settled in court, such as employers' liability insurance and motor insurance.

Lapse Risk:

This arises when the insured cancels (or surrenders) the insurance policy before maturity, leading to reduced recovery of fixed costs. This type of risk is less significant for non-life insurance due to the short contract duration, where commissions are paid in advance to the intermediary and may be difficult to recover due to lapse.

Reserve (allocation) Risk:

This risk arises when reserves are set at a lower level than actually required, which may expose the company's financial position to danger because of inappropriate decisions regarding underwriting. For example, high-risk insurance contracts may be underwritten on the assumption that collecting more funds strengthens the company's ability to bear them, or high levels of transactions may be underwritten.

Other financial risks:

They are risks that may lead to the rise of the financial loss of the insurance company, and they result for example from providing guarantees in favor of other parties, contingent (probable) liabilities, off-balance sheet financing, risks linked to investments in subsidiaries and affiliates, and risks linked to changes in tax legislations (tax risks).

Second – Regular risks (specific to the insurance industry)

1. Regular risks are risks driven by external factors that affect the entire insurance industry. And in most cases the insurance company cannot control these risks (European Commission, 2002, p. 8).

Judicial and legal risks:

The judicial and legal risk is a risk linked to the financial effect of changes in legislations and laws, where insurance companies must realize the effects of changes in the legal and regulatory requirements and implement internal systems in order to meet the requirements of supervisory authorities.

Risks of market changes:

Insurance companies are affected by the behavior of consumers and the acts of competitors, since the volume of premium income is determined according to the needs of consumers and their attitude toward buying insurance which are basic drivers for the sales of insurance services, and to the high competition between companies regarding premiums and products. And the adoption of strategies of marketing and premiums and competitive products, and the ability to adapt to market changes, and the effective use of the different distribution channels by the insurance company, all help in limiting the risk of financial downturn resulting from market changes.

For the non-life insurance market, the insurance cycle is one of the main drivers of the market. For example, when there is an entry of new competitors to the market, this often leads to a stagnation of insurance premiums and a surplus in the market, and at that time the degree of risk increases by the entry of insurance companies into non-competitive contracts.

Third – Systemic risks (domestic / global economy)

1. Systemic risks are connected to economic and social factors, local or global, that have an indirect effect on the insurance industry, and in most cases the insurance company is unable to control these risks (European Commission, 2002, pp. 8–10).

Risks of fluctuation of the market value of investments:

They are risks connected to the variability in the market value of assets, especially with the decline of their real value due to economic conditions. Depending on the nature of the placements, the fluctuation of the value of assets has a high or low effect on the insurance company, so it is necessary that this risk be controlled by the investment manager at the level of the company, and it is also important to note that in the case of life insurance a portion of the investment risks is borne by the policyholder (the insured).

Risks of environmental changes:

Environmental changes involve a set of problems, such as scarcity of water and pollution, soil erosion, air pollution, sudden climate change, in addition to the effect of technological developments which may produce big disturbances (OECD, 2008, p. 232). As for the risk of environmental changes, it is the risk of occurrence of a considerable increase in the frequency of natural hazards and environmental changes, so underwriters must seek to reduce the susceptibility to large losses due to natural disasters, and this by limiting the total coverage of risk in some areas. As for life insurance, the claims related to health and death resulting from natural hazards increase due to the rise in mortality and illness rates.

Risks of social changes:

Demographic change and consumer behavior are two main drivers of social risks; the length of life connected to the progress of medicine and the improvement of lifestyles (Hull & Godlewski, 2007, p. 51), has a negative effect on the field of life insurance because of the duration of some insurance contracts (such as pensions) that depend on the longevity of the insured, where the increase of life span leads to negative effects on the cost of pensions.

As for social changes they also affect the insurance industry in case of the rise of the frequency and amounts of claims related to compensation for accidents and injuries, due to the number of losses resulting from the increase of crime and theft. And for life insurance, the rapid development of the AIDS disease has led to a big increase in insurance premiums in some countries.

Risks of the economic cycle:

They are risks connected to economic changes resulting from operations and external factors, such as when the insurance industry in times of recession is exposed to a decline in the volume of insurance sales, and consequently a reduction in the volume of premiums; and there are other secondary factors related to economic changes that also result in an indirect effect on the insurance industry, as high unemployment rates may lead to an increase of claims for mortgage indemnities in non-life insurance, while in life insurance they will lead to the increase of the risk of contract termination by surrender or lapse because of the inability to pay the corresponding premiums, or the need of the insured to materialize his investments. And unemployment may

also lead to an increase in the rate of crime, and consequently the claims related to crime and theft for non-life insurance will also increase.

Risk of inflation rate:

It is a risk related to the big rise in the inflation rate. For non-life insurance the effect of high inflation rates is big in the calculation of reserves related to large activities, that is, the branches of insurance where the settlement of claims may take a long period after the date of notification. And for life insurance, inflation plays an important role in long-term contracts if the payments are subject to inflation adjustments, or to the charging of expenses that were set at nominal value. And inflation takes on a special importance for health and medical insurance because it is possible that the inflation of claims in these cases is higher than the economic inflation.

Risk of interest rate:

It is a risk directly linked to sudden changes in interest rates. For example, if interest rates rise this may cause a decline in the value of investments and their returns (due to the shift of investors from stocks to cash). And in the field of life insurance, the sudden decline in interest rates will negatively affect the reserves allocated for executed insurance contracts, since the provisions for many products are calculated by discounting future payments, and there may also be a risk to solvency if the matching assets are not retained. In the field of life insurance, increases in interest rates may lead to discontinuation or surrender by the insureds because of their inability to bear the premiums, or they may prefer to materialize their investment.

Exchange Rate Risk

The risk of fluctuations in the exchange rate has a significant effect on insurance companies with large-scale underwriting activities across different countries of the world, or on global insurance corporations; and this risk can be reduced through investing in assets denominated in the same currency in which the liabilities have been incurred.

Technological Change Risk

This type of risk is linked to the rapid evolution of new technologies that exert an influence on numerous aspects of insurance activity. For example, technological change may have a considerable impact on human health (such as diseases that result from the repeated and excessive use of computers), which, in turn, leads to an increase in health insurance and employer's liability claims.

1. Furthermore, technological risk also represents the danger arising from the inappropriate or inadequate use (or even the non-use) of information technology, or the inability to understand the products emerging from progress in information technology (van der Ende, Ayadi, & O'Brien, 2006, p. 129). For instance, an insurance company, by employing such technologies, may succeed in understanding and analyzing the reason for the increase in the volume of claims, or in ensuring the rapid settlement of claims.

4.4: The Classification of the Organisation for Economic Co-operation and Development (OECD)

1. In the year 2003, the Organisation for Economic Co-operation and Development issued the fourth volume within a series devoted to the fundamental aspects of insurance under the title: *Assessment of the Solvency of Insurance Companies*. In it, the OECD divided the main risks confronting insurance companies into the following categories (OECD, 2003, p. 11):

- Technical risks (risks associated with the exploitation of insurance);
- Investment risks;
- Counterparty default risks: broker, reinsurer, shareholder, branch, etc.;
- Risks of belonging to a financial conglomerate;
- Other risks;
- Management failure risks;
- Systemic risks.

First: Technical Risks

This category of risks is itself subdivided into:

Pricing Risk:

It is the risk of miscalculation associated with the very nature of the insurance process itself. Pricing is determined in advance before the insurer becomes aware of the actual cost of the services he has committed to provide, and this is referred to by economists as the inversion of the ordinary production cycle. Actual expenses may exceed even the most rational estimates of the volume of claims (their number, their cost, the assessment of damages by the courts at the time of the ruling rather than at the date of the incident) as well as overhead costs (wage increases, etc.). And because of the long period that separates the date of the premium payment by the insured from the delivery of the promised service by the insurer, the latter may find himself in a situation

of insolvency without facing any immediate problem in terms of cash flows, as the newly collected premiums are used to pay for old claims.

To avoid such a situation, premiums must be sufficient to cover the insurer's burdens (claims and administrative charges), while also taking into account the financial returns of the insurance company arising from investment allocations.

1. In the case of non-life insurance, the insurance balance equation is written as follows (OECD, 2003, p. 12):

$$P + FI = C + AMC$$

The equation encompasses the following:

- Gross reinsurance;
- By fiscal year of occurrence of claims;
- On a total company-wide basis and in a detailed manner according to the type of activity, or even according to the product.

The terms of the equation denote the following:

P: Premiums earned in the fiscal year n , that is, issued premiums minus the unearned premium reserve, where P represents the portion of premiums corresponding to the expected cost of risk and its management during the accounting period n .

FI: Financial income arising from premiums paid in advance and invested while awaiting future claims.

C: Claims incurred during the same period n , which include paid claims and reserves for reported but unpaid claims, in addition to reserves for damages incurred but not yet reported to the insurance company at the date of closing (delayed claims).

AMC: Consumed costs relating to administration and acquisition of premiums during the period n , where these costs are distributed among the branches and products of insurance on the basis of analytical accounting results, or, in the absence thereof, proportionally with insurance premiums.

Reserving Risk

Technical reserves represent more than 80% of the liabilities of an insurance company, as they measure the contractual commitments of the company toward its policyholders and other beneficiaries of contracts.

1. The risk of evaluating technical reserves lies in the possibility that the reserves may be insufficient to meet all commitments arising from insurance contracts (OECD, 2002, p. 19).

The obligations of an insurance company are not precisely known; therefore, they must be estimated by specialists who, in turn, may err for various reasons:

a. In the case of long-term obligations, the corresponding technical reserves are subject to considerable changes over time, changes that cannot be predicted in some instances, and in other instances are difficult to quantify due to:

- Fluctuations in interest rates in financial markets;
- Increased life expectancy;
- Changes in the inflation rate (which affects the cost of claims and the expenses of managing the insurance company);
- New legal developments (as in liability insurance).

b. In certain branches of insurance, the time span is long between the date of occurrence of the claim and the date of its final settlement, as the necessary information for evaluating a file is gathered only progressively. This applies particularly to liability insurance (environmental liability, medical liability, decennial liability, etc.).

c. At the date of closing, the insurance company may not even be aware of certain damages that have already occurred but have not yet been reported, i.e., delayed claims.

The reason behind the failure of an insurance company to allocate adequate reserves within the liabilities of its balance sheet in order to meet its contractual commitments may also be explained by inaccurate predictive analysis, legal or economic developments, the inability to gather the necessary information, the misinterpretation of the received data, and, in some cases, the deliberate intent to present more favorable profits.

Second – Investment Risks

The long time intervals separating the collection of premiums from the provision of services are sometimes very significant, which makes the insurance company a repository of considerable financial sums that it seeks to manage as efficiently as possible in order to be able to meet its obligations.

Thus, if it is necessary to constitute technical reserves among the liabilities of the company's balance sheet, it is in turn required to represent them with equivalent assets in terms of quantity and carefully chosen in terms of type; the continuous matching of technical reserves with investment elements of at least equivalent value enables the company to meet its commitments toward its policyholders.

The investments carried out by insurance companies are exposed to a variety of risks that may endanger the rights of their policyholders, namely:

Devaluation Risk

Every investment may lose its value due to a crisis in the stock market, a real estate crisis (market risks), fluctuations in exchange rates (assets in foreign currency), increases in interest rates in financial markets (which result in a fall in the prices of listed bonds), or the insolvency of the debtor (unlisted bonds).

Liquidity Risk

Liquidity risk is associated with the ability to repay debts at their maturity date. Some assets are liquid regardless of the nature of the debt owed, while others are liquid only with respect to the specific debts they match; as for other assets (such as shares), they may be considered liquid only if they can be sold in a manner that does not cause their market value to be significantly affected.

An insurance company may encounter difficulty in converting its investments into cash and on satisfactory terms at the moment its contractual obligations fall due, as liquidity problems often arise particularly from intermediaries retaining significant amounts of premium income, or from a real estate crisis that makes the disposal of some properties difficult, or from the accumulation of receivable damages, etc.

When "surrender values" (*valeur de rachat*) are contractually guaranteed, a life insurance company may, in a situation of rising interest rates, be exposed to a massive number of requests from policyholders wishing to transfer their savings toward more profitable products; and, at the same time, the prices of bonds representing mathematical reserves will fall, leaving the insurance company compelled to bear losses by selling part of them in order to obtain liquidity.

It is worth noting that liquidity problems generally precede solvency problems; and that cash difficulties may be resolved through borrowing, provided that lenders can be found, whose decision depends on the company's financial position and on the cost of the loan.

Interest Rate Risk

As already pointed out in relation to life insurance, rising interest rates in financial markets lead to a decline in the value of certain assets precisely at the moment when policyholders wish to recover their investments; and when interest rates fall, this leads to great difficulty in providing guaranteed high returns. In the case of non-life insurance, it is not possible to replace high-rate bonds maturing in a period of low interest rates except with lower-yielding assets, which, in turn, affects the ratio of claims to equilibrium premiums (this depending on the amount of financial income (FI) referred to above).

Asset-Liability Mismatch Risk

Technical reserves must at all times be covered by suitable assets of equivalent value, whatever the fluctuations of the capital market that affect the values and returns of assets, since these fluctuations may, in turn, influence the method of calculating technical reserves.

This risk lies in the fact that the changes occurring in the values of liabilities and assets may not be matched, which consequently results in losses for the insurance company.

Valuation Risk

This refers to the possibility that the auditors of an insurance company may oblige it to reduce the values of acquired investments to a degree exaggerated in comparison to their current market value. This risk is particularly related to the case of participation in strategic equities mentioned below.

Risks Related to the Use of Financial Derivative Instruments

The use of derivatives entails particular risks that go beyond the market, credit, and liquidity risks mentioned above, due to:

- The effect of leverage, which results in the possibility of incurring a large loss;
- Users with insufficient experience;
- The absence of regulatory laws in many jurisdictions.

Third – Reinsurance Risks

Reinsurance risks simultaneously involve two components: a technical risk and the risk of default by the debtor reinsurer.

Technical Risk

Reinsurance relieves the direct insurer of part of the liability for certain risks it has undertaken to cover. From a technical standpoint, reinsurance responds to the insurer's need to form a pool of risks that are homogeneous in nature and in value.

The function of the reinsurer lies in:

- Bearing the insured risks that exceed a certain retention threshold, thereby making the portfolio of the direct insurer more consistent;
- Covering excess claims in terms of number and total cost, compared with the statistical average used in the calculation of the insurance premium tariff, since the portfolio managed by the insurer is not a precise reflection of the risks taken into account when determining the premium value.

It should be noted that reinsurance treaties must be designed in accordance with the circumstances of each insurance company, and must protect it from losses resulting from catastrophic damages or from an abnormal accumulation of claims. Moreover, the cost of reinsurance must remain within the means of the insurance institution, otherwise it will be forced to increase its pricing.

Default Risk of the Debtor Reinsurer:

By virtue of the reinsurance treaty, the reinsurer bears part of the obligations of the direct insurer that it has undertaken toward its policyholders. This is reflected in the balance sheet of the direct insurance company by recording, on the asset side, the technical reserves held by the reinsurer. Yet it must be stressed that in the event the reinsurer defaults in performing its obligations, the direct insurer must bear alone the full payment of all claims, for it is contractually bound to do so, and because there is no legal relationship between the policyholder and the reinsurer.

From this, it follows that default on the part of the reinsurer may seriously shake the financial strength of the insurance institution unless certain necessary precautions are taken, such as:

- a) Recording, on the liabilities side of the balance sheet, the total technical reserves of the reinsurer, so that the direct insurer appears as the sole party responsible toward its policyholders.
- b) On the corresponding asset side, representing the rights over the reinsurer (the reinsurer's share of total technical reserves, current account).
- c) Negotiating the guarantees to be included within the reinsurance treaty in order to safeguard its rights.
- d) It is the responsibility of the insurance institution to determine the information it requires to assess the solidity of the reinsurers with whom it deals.

Fourth – Default Risk by a Particular Partner

This type of risk is divided into:

Intermediaries:

The intermediaries who market the products of a given insurance company collect premiums and settle claims, and may sometimes be delegated full responsibility for managing these. In such cases, they constantly hold funds on behalf of their partners.

In this situation, default by the intermediary causes harm to the insurance company, since the latter is liable as soon as the intermediary receives premium payments from the policyholder.

Furthermore, if a single intermediary provides an insurance company with a significant proportion of its total production, this puts the intermediary in a position to exert dangerous pressure on the company's policy with regard to pricing and risk acceptance.

Therefore, it is in the interest of the insurance company to reduce the funds it leaves at the disposal of its intermediaries; it must also diversify its service distribution channels and prevent any single distributor from exercising substantial influence over its marketing policy.

For these reasons, most laws prohibit accepting rights on intermediaries to be represented as technical reserves.

Shareholders:

An insurance institution established as a joint stock company must be able to call upon its shareholders to cover losses or finance new activities. It will be in a critical situation if its shareholders are in a position that prevents them from meeting its needs. It does occur that an insurance company sometimes goes bankrupt as a result of default by its main shareholder.

To avoid such situations, supervisory authorities in several countries have organized control over shareholders as the case may be, by implementing some of the following measures:

- a) Mandatory appointment of a main shareholder (to serve as a reference) who acts as the automatic point of contact for the supervisory authority in case the insurance institution faces a critical situation.

b) Provision of detailed information on shareholders within the licensing file, which will be of crucial importance for the licensing authority.

c) Obligation to notify or obtain prior authorization for any acquisition, increase, or disposal of a participation in the insurance institution. Violation of this procedure exposes the company to sanctions (by court order) through the suspension of voting rights attached to unlawfully transferred shares.

d) Requesting the submission of information from the relevant local supervisory authorities if the shareholder in question is a credit institution, an investment company, or an insurance institution headquartered in another country. Here emerges the importance of organizing the exchange of information between states.

e) If the potential shareholder does not belong to the financial sector, the competent supervisory authority must require an audit of its financial situation by specialized experts before granting approval or authorization for a change in shareholders.

Branches and Participations

An insurance company holding shares in other financial companies may be forced to supply them with additional funds, which is known as contagion risk, i.e., the possibility that the difficulties of the subsidiary institution may be transferred to the parent company.

The measures taken to protect policyholders against this type of risk vary in strictness depending on the country:

a) In some jurisdictions, insurance institutions are prohibited from acquiring shares in financial institutions (and vice versa). In Japan, until 1998, a life insurance company was not allowed to control another company specialized in non-life insurance (and vice versa).

b) In many countries, participations in other insurance companies may not be represented as technical reserves.

c) The European Directive 98/78/CEE of 27 October 1998 established supplementary supervision of insurance institutions belonging to an insurance group, by introducing the "solo+" solvency rule, which excludes the double use of own funds between the parent insurance institution and the subsidiary insurance institution.

Fifth – Risks Arising from Belonging to a Group or a Financial Conglomerate:

The growth of groups and financial conglomerates worldwide has imposed complex problems on supervisory and regulatory authorities, as an insurance institution incorporated within a group or conglomerate is exposed to additional risks, whose severity depends on the degree of unity of the conglomerate, its size, and the international scope of its activities.

These risks include:

- The risk of double use of own funds: since the capital that appears to be available to guarantee the obligations of one institution within the group is, in reality, tied to another institution belonging to the same group.

- Risks arising from transactions between group companies: these occur due to transfers of funds or risks between companies of the same group, which may result in harming the financial soundness of one of them.

- The risk of opacity: information that would be useful for supervising an insurance institution may exist outside the entity under supervision, particularly in cases where institutions belonging to the same group are located in another country or are not subject to individual prudential oversight.

1. The risk of contagion: disturbances in one company belonging to a given conglomerate may affect the soundness of the operations of another company within the same conglomerate (OECD, 2011, p. 51). The symptoms of a single entity may negatively impact companies that bear the same name, logo, brand, or use the same branches. Financially, losses incurred in one type of activity reduce the available capital for other parties of the same group.

- The risk of conflicts of interest between sectors: managers of a certain conglomerate may be required to arbitrate between the interests of policyholders and the need to reinvest in another company within the group. For example, when a life insurance institution subscribes to an increase in the capital of an affiliated banking institution at the expense of future dividends of policyholders.

- The risk of legal arbitration: when an activity can be carried out either by an insurance company or by a bank, the entrepreneur will tend to choose the entity that requires less equity capital as a guarantee. For example, in the European Union, preference is given to an insurance institution when dealing with large risks that it can underwrite, while other risks fall under the banking institution.

Sixth – Other Risks:

Researchers and supervisors point to other risks that can be included with one or more of the risks described above:

- **Growth Risk:** Sometimes, growth in the portfolio of an insurance company may occur at the expense of initial reserves and the neglect of proper risk selection and pricing. This results in an aggravation of claims realization compared to the collected premiums. Institutions newly adopting this approach are particularly the most exposed to the financial consequences of such policies. Based on the above, growth risk can be linked to mispricing risk.

- **Liquidation Risk:** When a given insurance company suspends or terminates its licensed activities (OECD, 2001, p. 51), it thereby risks being unable to provide the financial resources necessary to fulfill its commitments toward its policyholders and to settle their claims in full. This situation can be avoided through the establishment of adequate technical reserves, in which case this relates to the risk of poor reserving.

- **Risks related to operating expenses:** The loadings included in premiums must cover the insurer's expenses. However, they may prove insufficient in cases where the contract's duration exceeds the premium payment period (as in life insurance), or when claim settlements and recoveries require longer periods. This risk may be classified with mispricing risk (premium loading too weak) and poor reserving (the obligation to establish management reserves). In some countries, tax administrations do not allow the establishment of management reserves. In Germany, new institutions are required to form a regulatory fund that may be allocated to non-recurring expenses.

- **Risks related to guarantees in favor of others:** Guarantees granted to other parties (off-balance sheet commitments) in order to secure the fulfillment of financial obligations undertaken by them may lead to severe losses. This risk particularly arises if such guarantees take the form of good faith guarantees for all the activities of the institution, and especially for the subsidiary.

Seventh – Management Risks:

The quality of managers and employees of an insurance institution is a decisive factor in its financial soundness. Inefficient or fraudulent management may expose the company to serious failure. Management risks often arise from mispricing, poor reserving, and inappropriate investments, among others.

- Laws in some countries require compliance with quality standards for insurance company officials. Generally, supervisory authorities pay particular attention to the competence of the companies' executive managers.

- Legislation in some countries sets a minimum requirement for general managers such as a university degree and years of experience in the insurance industry, among others.

- On-site inspections of operating conditions in the institution provide an opportunity to examine the effectiveness and competence of its managers.

The leadership of an insurance company in its distribution network, pricing policy, monitoring of claims and profits, risk selection, administrative organization, financial management, effectiveness of reinsurance, internal controls, etc., are measures that demonstrate the professionalism, expertise, and reliability of sectoral officials of the institution and its general management.

At the international level, supervisory authorities in various financial markets take measures to exchange information on the competence of managers of cross-border groups.

- Nevertheless, protective legislation on privacy and amnesty laws may hinder the application of appropriate and proper tests.

- Requirements concerning the quality and reliability of managers should also be extended to auditors, certified actuaries, experts, and rating agencies, since all these actors can influence the image marketed by the company.

Eighth – Systemic Risks of Insurance:

Financial markets are witnessing rapid development and expansion, with institutions surpassing the traditional old barriers through the design of new products and investments in new markets. All of this has led to the emergence of complex forms of organizations whose operations have expanded on a global scale.

In parallel with the above, and in a less favorable economic environment, the degree of exposure of the global insurance system to risks has increased due to:

- The deterioration of the technical quality of underwriting policy as a result of growing competition for large risks, the excessive capacity of reinsurance, and consequently, mispricing.

- The imposition of a new organizational structure on institutions by the computer and internet era, with administrative and marketing staff being replaced by electronic machines, leading to a reconsideration of internal control and a reform of external supervision, particularly by the state.
- Investments, which were previously used as a source of strength and security, have turned into a factor of instability.
- Harmonization with prudential rules and international accounting standards, through the elimination of more cautious and experienced laws in some countries, may lead to a general reduction in the degree of policyholder protection and to undermining the stability of financial markets.
- The concentration of reinsurers means that the largest companies alone bear all the consequences of natural disaster losses.

5. Conclusions

Insurance companies are among the active financial institutions in national economies, given their dual role of providing a protection factor against damages and losses that may affect individuals and institutions, and of acting as a financial intermediary that receives funds in the form of premiums collected from policyholders to be invested in various aspects of national investment, thereby supporting development plans in order to achieve economic and social stability.

Insurance companies, in their activities, face many risks that may threaten their financial soundness and can sometimes lead to their bankruptcy. For this reason, many supervisory and regulatory organizations and bodies have presented different classifications of the types of risks encountered by insurance companies, with the aim of identifying, assessing, and preparing plans and methods, as well as providing tools and means to deal with them. Perhaps one of the most precise classifications presented in this field, as was discussed in this chapter, is that of the European Commission, which divided risks first according to the levels at which they may arise, which are three: the insurance company itself, the insurance industry, and the economy in which it operates.

The first level included several operational risks, the most important of which are: underwriting, reserving, credit, reinsurance, investment, and liquidity. As for the risks specific to the insurance industry, they are risks driven by factors outside the scope of the insurance company, and they are of two types: regulatory risks related to changes in legislation and laws, and market risks related to changes in consumer behavior and competitor actions.

The risks that arise from the third level are linked to local or global economic and social factors that have an indirect impact on the insurance industry, and in most cases, the insurance company is unable to control this type of risk. The most important of these are: risks of fluctuations in the market value of investments, inflation risk, interest rate risk, exchange rate risk, and technological change risk.

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