SOLVENCY II

The new prudential regulation of the insurance sector: a simplified guide

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From January 1, 2016, the insurance supervisory system in Europe, and therefore Italy, has adopted a new paradigm.

In summary, it is defined as a risk-based system, since it focuses the attention of the supervisor, as well as undertakings and the market, on the quality and quantity of risk that each undertaking assumes through its commitments towards policyholders, and of investment of financial resources.

Naturally, it is difficult to maintain that the concept of risk represents an innovation of finance, of the economy and of people’s daily lives, after much uncertainty and difficulty in the past decades and most of all, after the immense financial-economic crisis that broke out in 2008 throughout the world.

However, as one may guess, a supervisory system, especially if it is of continental dimensions, is like a large transatlantic ship that, to change route, needs an ample period of time and space to manoeuvring that requires the entire crew to not only take the right route, but also to search for it while the weather outside is inclement and the ocean buffets the ship.

That’s how it was.

The European Parliament approved the new Solvency II regulation in the Spring of 2009, after a preparatory period of nearly a decade.

Important corrections to the original Directive were introduced in 2014, in the light of the bitter experience of the global crisis.

In the course of 2015, the system was completed: the European Commission submitted the delegated Acts of Solvency II to the Parliament and the Council, while EIOPA, the European Supervisory Authority, proposed technical implementation standards to the Commission, and issued the numerous Guidelines for the practical application of the new regime.

The result of this large change is summarized here in an intentionally less-technical way, and hopefully accessible to the world of stakeholders, which today also includes, considering the importance of insurance contracts in everyday life, the vast public of common citizens.

In these junctures, the press, and in general, journalists, have an important role, since they perform an irreplaceable daily activity of information dissemination and public education, both in a direct way, explaining arriving news, and in an indirect way, when using new criteria to read and interpret market data.

Our hope is that this guide is an effective help to understand and make others understand the “pillars” of the new system and the concepts that it adopts. While aware of the inevitable applicative difficulties and areas for improvement, Solvency II provides new and more focused lenses to analyse the insurance world, prevent crises, and protect policyholders and beneficiaries.
From Solvency I to Solvency II, a long journey

What are the solvency requirements used for?

The undertakings, and in general, all human activities are exposed to risk of failure. We hope it doesn’t happen, naturally, but it may. The shock wave may remain within the boundaries of a family or small business, or extend to undertakings with thousands of employees whose jobs are at risk. In finance, then, defaults may have catastrophic consequences. The insolvency of a bank, for example, may put the savings of current account holders at risk, and produce incalculable damage to the economy of a territory. The same thing happens for insurance, whose business, after all, is founded on a promise: to repay in the future, in the form of capital or service, money received from the policyholder at time of stipulation of the contract. In a developed society, such as that in Italy, the insurance umbrella is so ample that should an undertaking go bankrupt, the impact would be quite grave. In 2015, for example, policies were sold in Italy, with a value of approximately €147 billion.

The savings, pensions and true wellness of millions of people rest on those promises. It is precisely the centrality that banks and insurers take on in a modern society that justifies the imposition of capital requirements. That is, the obligation of the undertakings to constantly maintain adequate capital correlated to the risks inherent with their business. For the insurance sector, especially, it is necessary to keep in mind the specificity of its work, and the way with which its balance sheets are written. Premiums collected from policyholders do not appear as assets in the accounts of an undertaking. That money, for the most part, fuels the technical provisions of an insurer, that is, the obligations taken towards customers at the moment of underwriting a policy.

While waiting to return the money to the client, in the form of a payment for a claim, or capital released at the end of the term of a life insurance policy, the insurer invests those resources to preserve and grow their value. But it is not assured that all investments are successful, therefore, notwithstanding the diligence of a company in the calculations of its commitments and the allocation of the relative resources, there is the risk that, over the

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The key word

**Solvency**
Ability to face assumed commitments

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The Numbers

The insurance market in Italy

<table>
<thead>
<tr>
<th>Premiums collected in 2015</th>
<th>€32 bln</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-life business</td>
<td>€17 bln</td>
</tr>
<tr>
<td>Life business</td>
<td>€115 bln</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>€147 bln</td>
</tr>
</tbody>
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The rules

1. Undertakings shall establish technical provisions which must be such that they can meet any insurance and reinsurance obligations arising from insurance contracts towards policyholders, beneficiaries and those entitled to insurance benefits, in compliance with the provisions established by IVASS regulation.

2. Undertakings shall hold technical provisions the value of which shall correspond to the current amount undertakings would have to pay if they were to transfer their insurance and reinsurance obligations immediately to another insurance or reinsurance undertaking.

(Art. 36-bis Code of Private Insurance)
A simplified Guide to Solvency II

The trade of insurance gives great security to the fortunes of private people, and by dividing among a great many that loss which would ruin an individual, makes it fall light and easy upon the whole society. In order to give this security, however, it is necessary that the insurers should have a very large capital.

Adam Smith
(The Wealth of Nations, Book V, Chapter 1, Part III)

course of years, the insurer is required to put hand to wallet to replenish its resources. This happens because the claims have been more costly than previously assumed, or because a part of the investments used for covering technical provisions has evaporated due to the negative performance of financial markets.

Well, these examples demonstrate the importance of having capital buffers, to use them in times of need. It is an awareness that has always accompanied the history of the insurance industry.

Not surprising, consequently, that for many years the laws or regulations of many countries have required the companies to equip themselves with specific financial safeguards: the so-called technical provisions (commitments), investments dedicated to their coverage and the so-called solvency requirement (solvency margin in Solvency I, or Solvency capital requirement in the new language of Solvency II).

How is the requirement calculated?

How we were

For thirty years, until December 2015, the amount of the solvency margin was determined following the rules of Solvency I. In practice, it was calculated, in life business, as a percentage of mathematical reserves. In non-life business, as a percentage of annual premiums or the average costs of accidents. That mechanism had the merit of simplicity, crowds of consultants and actuaries were not required to determine the margin. On the other side, however, there were evident limits. Those capital buffers did not take financial risks into account, which may notably influence the performance of an insurance undertaking and, in some cases of adverse performance, even bring it to ruin.

Certainly a prudential discipline with fixed “weights”, not connected with the performance of the main company variables, was not able to perform an adequate alert function, also with the goals of timely and effective supervisory action. In addition, Solvency I designed a patchy regulation on the European continent. EU directives provided the reference scheme, the minimum level of harmonisation for the area of the Union, but then each country was free to decide on their own the actual solvency margin calculation method. There was, therefore, the real danger that an “un-level playing field” could favour some countries, to the detriment of others. Not to mention the consequences created by the growing internationalisation process of the insurance industry, with the birth of more groups with presences in multiple countries, obliged to respect the most varied prudential regulations while, through the European passport, their policies had free access in the continental market.

The decision was made to change path, to achieve a maximum harmonisation of the European regulation that - it was the main goal of European legislators - closely connected the definition of capital requirements to the characteristic risks of an insurance undertaking. In November 2003, the European Commission instituted a permanent committee with the mandate to draw up a draft framework law for risk management in the insurance sector. It was the beginning of a long journey that ended twelve years later with the entry into force of Solvency II.
Welfare state is a characteristic of the modern constitutional states, that are founded on the principle of equality, from which derive the aim of reducing inequality and providing and guaranteeing rights and social services.

The key word

The transition towards the new regulation

Such a long legislative journey is justified by the complexity of the technical problems faced to process the new insurance undertaking risk metric. As for the various languages that live together in the European Union, the “language of risk” is also affected by the history of the individual countries where the insurance industry was born and developed. It is the result of their peculiarities and different welfare state systems. Combining these distinct realities by finding the maximum common denominator in the unique European context has required a laborious march towards compliance. It is a journey that, because of the tensions created by the sovereign debt crisis of the two years of 2010-2011, also ran the risk of a dangerous stop. The complexity of the European legislative system, in which the directives and their connected measures had to take a long and tortuous journey before coming to light, must also be considered.

Actually, the Solvency II directive was definitively approved by the European Parliament in 2009. That text contained the general principles of the future regulation: calculation methods of the new capital requirements, guidelines on corporate governance and risk control of insurance undertakings, disclosure obligations. Another step forward was taken with the Omnibus II directive (2014), adapting, among other things, the prudential rules to the new supervisory rules determined by the birth of EIOPA that, since January 1, 2011, has had the task of monitoring the continental policy market, in coordination with the national Authorities. Delegated acts were subsequently issued, and as a result the technical measures indispensable for the launch of the new prudential regulation system took form. Finally, on January 1, 2016, the new discipline entered into force, and Solvency II replaced the 14 previous directives and 28 national regulations, which were substituted by a single regulation for the entire European Union area.

Solvency II - The stages

- 2009 - European Parliament and Council approve Solvency II
- 2014 - European Parliament and Council approve the Omnibus II directive that amends some aspects of Solvency II
- 2014 - European Parliament approves the Regulation with theapplicative measures of Solvency II
- 2015 - EIOPA (European insurance regulator) publishes its guidelines for implementing Solvency II (Feb. 2015- Sept. 2015)
- 2016 - January 1: Solvency II enters into force
The concept of risk

Solvency II is, as previously stated, a prudential regulation born with the objective of measuring every significant risk to an undertaking, with the aim of determining the amount of capital necessary to avoid that, should the risk materialise, the insurer fails.

To understand how the new discipline “works”, it is necessary, first of all, to be familiar with the concept of risk, or rather, the probability that the feared event occurs. Here we run into the first difficulty. If what may happen in the future is the subject of our worry, the compass that we need to have some practical indication is, however, oriented towards the past. One cannot do without. Precisely from there, from the past, the useful teachings to face the coming risks arrive.

It is a “science” that the insurance industry, used to covering personal and company risks, has learned well. To correctly calculate, for example, the tariff of motor liability insurance, an insurer must estimate the number of accidents that a vehicle may cause. This pushes the insurer to study the frequency of crashes in the past, and their average cost. Moreover, to have some additional indication on the risk to cover, it articulates general indicators with more specific parameters, such as driver age, the region where the vehicle is registered, and so on. At the end of this analysis, the insurer is able to formulate a hypothesis on the possibility that the claim may be repeated, and at what cost.

This is, of course, an estimate based on the assumption that the past is almost equally repeated. Something that, naturally, doesn’t always happen. When an unexpected fact happens, this “becomes past”, and is therefore incorporated into the prior analysis, in the expectation that the next unexpected event imposes a revision of the estimate. It’s not the best case, naturally. It would be easy for the insurers to have a crystal ball, but, after all, if a similar forecasting instrument existed, there would be no need for insurers.

What happens with motor liability insurance can be replicated for all risks that an insurer is used to covering, and also for financial risks that affect its business. There is not always historical data sufficiently established to support an analysis on the probability of an event. This is the case, for example, of so-called “emergent risks”, that is, those imminent dangers whose morphologies and dynamics are not well known. Cybernetic risks, electromagnetic storms, climate change effects, natural disasters: in these cases, in which statistics give a more limited support, the development of mathematical models built
on certain assumptions help. The result doesn’t change: even in these cases, associated with certain risks, we have a probability of occurrence, and an estimated claim cost.

**The black swan**

The new prudential regulation has been constructed with the goal of covering all imminent risks on the business of an insurer, within an interval of probability of 99.5% per year.

In practice, only extreme cases have not been taken into consideration, which have been assigned a very slim chance of happening, not more than 0.5%. If the events perfectly followed the probability distribution, it might be concluded that the new prudential monitoring system has been designed to limit the possibility of bankruptcy of an undertaking to once every 200 years (1 in 200 makes 0.5%). However, the reality is not so predictable, as gamblers well know, who learn at their own expense how ruinous it can be to blindly trust the linear progression of frequencies. In addition, there is another aspect to keep in mind. Often those extreme cases, so rare, have the biggest impact on the stability of an undertaking. They are the so-called “black swans”, as the Lebanese mathematician Nassim Taleb has defined the completely unexpected events, which, conversely, periodically happen with catastrophic consequences. The financial crisis, which began in 2008 with the insolvency of American sub-prime mortgages, is precisely one of these cases, and, eight years later its consequences are still felt. One may conclude that if the regulation is not able to protect the undertakings from the most ruinous and unexpected events, it fails in its main goal. But this is not the case. Having placed risk at the centre of the business of an undertaking represents an epochal change in the supervisory discipline. Insurance undertakings have always been used to measuring risks, but in this new regulatory framework, they shall undergo a strict discipline: the more risks they decide to cover with their policies, the more capital they will have to have. All this, as we will see in detail, is accompanied by a much more pervasive internal control system, and an increased accountability of the corporate bodies.
A scale always in balance

If the previous supervisory legislation was founded on a given amount of capital to draw upon when necessary, Solvency II, rather, designs a system in constant balance between risks and capital requirements. It is a dynamic balance, because the risks, and the necessary financial assets to confront them, are realities in constant change, and require frequent adjustments. This guide often refers to a scale to represent the concept of balance on which the new system has been built.

In its ordinary business, an insurer calculates, first of all, the obligations taken with the policyholders (the technical provisions) and checks that it has sufficient financial resources to be able, when necessary, to respond to those obligations, such as reimbursing an accident, or paying the capital of an expiring life insurance policy. In the first place, such resources are made up of policy premiums collected at the time of stipulation of an insurance policy, and calculated on the basis of the probabilities. However, unexpected events may happen that change the expectations, and which make the bill higher. The imposition of prudential capital requirements responds precisely to the need that the undertaking is not unprepared to face similar adversity.

The new regulation has been constructed subjecting every important aspect in the life of an insurer to the most varied stress scenarios. “If this particular circumstance happens – it is the question that the regulators asked themselves - how much capital should the insurer have so as not to almost certainly fail (that is, in 99.5% of cases)?”

A risk may hide on the side of technical provisions, for the eventuality of reimbursing accidents for a higher amount than initially estimated. Or even on the opposite side of the investments destined to cover those obligations, subject to the fluctuations of financial markets. This is how to determine, for each aspect of the insurance business, on both sides of this imaginary scale, a specific capital requirement. The sum of various “bricks” represents the total Solvency capital requirement (SCR) of the undertaking. That is, the capital to hold in order to face unexpected events that may happen.

The “technical provisions”, or rather, the obligations taken towards the policyholders, are covered by appropriate assets on the other side of the scale. In case of unforeseen events - and the SCR of Solvency II is needed to calculate their potential impact - these amounts are covered by the undertaking’s own funds.
A building that rests on three pillars

The “home” of Solvency II has been built on three pillars. The first one sets the quantitative requirements of the new supervision system. It doesn’t monitor only the capital, but also the correct evaluation of all the obligations towards policyholders, the diversification of investments and their consistency with the liabilities and with the “appetite for risk” defined by the senior management, the profitability and sustainability over time of products offered, the ability to mitigate the technical and financial risks. The solvency of an insurance undertaking is, however, an even wider concept. It is obtained by complying also with qualitative requirements - the second pillar of Solvency II - which relate to the corporate governance and the functionality of the boards of directors; and with disclosure requirements and comparison with the public - the third pillar.

Market consistent valuation
The assets (liabilities) shall be valued at the amount for which they could be exchanged (transferred or settled), between knowledgeable and willing parties in a transaction under normal market conditions.
The role of supervision changes

In the new context of Solvency II, the role of supervision also changes, called upon to constantly follow company choices and examine the most difficult decisions. An important aspect of the new regulatory context regards the function of transparency. The information flows of the undertaking towards the market and the supervisor become an essential aspect of the control system. It is not a foregone conclusion. The aim of transparency and company stability may also diverge where, in a situation of difficulty, the undertakings are tempted to hide their problems from the market and supervisors out of fear that complete sincerity may accelerate the crisis. Solvency II overturns this argument and the lever of transparency is used in a proactive approach to the prevention of company crises. “Obliged” to provide adequate information to the market and supervisors, the undertakings must follow a much greater discipline in their business choices, conditioned by that type of external control.

A system consistent with international accounting standards

Finally, the consistency of the new prudential supervision discipline cannot be neglected, with the international accounting criteria used to write consolidated accounts of insurance undertakings. In both cases, the “market” valuation (market consistent) becomes the only unit of measure. In this case too, Solvency II takes a significant step forward with respect to the previous regulation.

The new system, as we will see in detail, establishes that technical provisions and assets representing them are estimated by their “present” value to show their intrinsic coherence.

Pay attention to... all the insurer financial statements

Just one reality, and different ways to represent it. There is not just one way to “read” the performance of an insurance undertaking. In relation to their goals, and to the evolution of the accounting regulation, different types of accounts, applied to the same entity, may produce different “pictures”. There is the annual (or individual) financial statement, that is used to pay taxes and distribute earnings. It is written according to the national accounting standards. When multiple companies contribute to forming a single group, a consolidated financial statement is also drafted, which follows different standards, the international accounting standards (International Accounting Standards - IAS - or International Financial Reporting Standards - IFRS) and it is more widely used by investors to compare the performance of companies located in different countries. Finally, there is the reading of Solvency II that, in truth, represents, rather, a methodology to verify whether a company is economically solid enough to withstand an unexpected shock. The differences? In the balance sheets of Italian companies, some accounting items are, still today, valued at the lesser between the purchase price and the market value of an asset, adhering to the prudential standard that has historically characterised the national accounting standards. With regard to the provisions, in line with the same prudential standard, the “ultimate cost” of an accident shall be calculated, that is, how much will be effectively paid by the insurer at the moment of its liquidation. Important differences, up to possible “inconsistencies”, in the reading of the balance sheets may be even more pronounced when, in the consolidated balance sheet, instead, international accounting standards are applied which means the prevalence of the market price over the prudential criteria. It must also be added that a process of gradual convergence with a new international standard on insurance contracts (IFRS 4) is proceeding; this should incorporate many of the methods of Solvency II into the consolidated accounts to value technical provisions.
The first pillar: two capital requirements

The heart of the new supervisory system is obviously represented by the method of measuring risks and calculating capital requirements of an insurance undertaking. Having illustrated how Solvency II is set up, now it is time to more closely observe its operating mechanism, from new criteria to calculate technical provisions, to the analysis of the most varied insurance risks, to the calculation of the requirements.

The insurer balance sheet according to Solvency II

How to calculate technical provisions

Solvency II has defined a precise method to calculate the value of the technical provisions, that is of the obligations taken towards the policyholders, that appear as debts in the liabilities of the financial statement of an insurer. How much are those debts worth? The reply of the regulator is very simple: the value of the technical provisions corresponds to the actual amount that the companies would have to pay if they were to immediately transfer those obligations to another insurer.
Discounting

In finance, the term indicates the financial process that allows the determination today of the present value of capital that has a natural expiration date in the future; through the application of a discount rate, one may identify the financial equivalence between two capitals with different expiration dates.

Example: the present value of 100 after seven years at the 3% rate is

$$\frac{100}{1.03^7} = 81.3$$

The present-actuarial value takes also account of the probability of the death of the subject. If this is 9%, in 7 years, it is

$$\frac{100}{1.03^7} \times (1-9\%) = 74.0$$

The risk tree

With the valuation of assets and liabilities at the market value (market consistent) we have taken an important first step in the construction of Solvency II, but now the decisive step awaits us: to identify company risks and submit them to the most diverse stress scenarios in order to obtain the prudential capital requirements that the insurer needs. In order to determine a measure of risk in extreme conditions, we must again look to the past and master the concept of volatility.

This term is used in finance to represent the greater or lesser risk of an asset that can be derived from the trend of its prices in a time series. Volatility is defined as the price dispersion around their average. The expression may be abstruse, but what it means is clear, even intuitive. A stock, whose price has varied between €2 and €20 in the last two years is, for example, considered more risky than a bond traded in the same period between 95 and 98 cents. That is why the regulators have estimated the effects on the volatility of different adverse scenarios, to establish the capital requirements appropriate to each business risk. The calculation, anyway, is not so mechanical, and insurers have some arrows in their quivers to mitigate the potential impact of some vulnerabilities.

Most of all, the long term of their investments spontaneously reduces the peaks of volatility because, if measured over a long course of time, positive phases compensate for the negative ones. Time, in the end, is also a medicine for financial investments. In addition, the insurance industry, in compliance with the investment prudence principle, may better mix the portfolio to mitigate the extent of the risks.
The risk tree built by Solvency II has a thick crown. Its main branches (see figure on the opposite page) correspond to the main risks that an insurance undertaking finds in its business. There are financial risks defined in the different segments (equity, interest rates, currency, spreads, real estate, etc.), and, naturally, insurance risks. Let’s see them in detail.

The financial activities represent a fundamental component of the insurance business. As previously mentioned, the insurer’s possibility to absolve, at their expiration, the obligations provided for in the insurance contract depends on the quality of the investments backing technical provisions. This explains the attention with which regulators have weighed the risks of the financial operations, estimating the risk of instantaneous loss in case of shocking events, associating a specific solvency requirement to each of them. Some risk that run across entire classes of investments have also been considered, for example, the risk of concentration in a specific asset class, or the risk of failure. More specifically, as regards bond investments, the new regulation requires insurers to evaluate the effects of an increase (or reduction) of the interest rate that may reach 70% for short term expirations (up to one year). Bank deposits are not subject to a specific rate, as long as the entire amount is covered by a deposit guarantee system. The new discipline exempts the bond issues of some surely trustworthy international institutions, among which are the European Central Bank (ECB), central banks of countries of the Euro Area and multilateral development banks, from margin requirements. The same exemption applies to Government bonds.

Insurance risks have an important place on the risk tree, being precisely indicated in the pages of the directive, and in many modules and sub-modules of the supervisory instructions. In the life business, the risk of a permanent and instantaneous increase in death rates (+15%) used in the calculations of the technical provisions is weighed. If the insurer has underwritten policies to cover the risk of death of the policyholder, that unexpected increase in mortality would render the technical provisions of those contracts insufficient. Solvency II also takes into consideration the risk, fortunately remote, of a pandemic, which is the unstoppable spread of an epidemic. The last one on record was the Spanish flu, which spread in the wake of the first World War (1918-1920), causing tens of millions of deaths throughout the world, more than the victims of the Great War.

The opposite risk is also evaluated, i.e. the risk of longevity, in the case where the same mortality index undergoes an instantaneous and unforeseen fall (-20%) compared to the estimated value: the increase in lifespan is a risk for an insurer when a company, for example, shall pay life annuities to its policyholders. An increase in illness and disability (+35%), too, is taken into account when it has an impact on the value of life policies or, in general, on contracts underwritten in that specific insurance branch. Each cost component has been carefully analysed by the regulators to weigh the specific risk, even that of an increase in lapses compared with the physiological number, or an increase in costs above the estimates.
In non-life business, the risk modules that insurers shall calculate taking into consideration all the typical risks of their business, estimating the possibility of occurrence in relation to known historic series or, in absence of such data, using mathematical simulations. This case covers, for example, risks of earthquakes and other natural disasters, catastrophe caused by humans (terrorism, for example), air plane accidents, fire and so forth. Each insurance class has found its place in the Solvency II schemes, that have associated each risk with an appropriate prudential requirement in relation to type, frequency, potential impact of that particular exposure. In addition to all this, there is always, evaluated by the regulators, the possibility that some internal procedure goes wrong, and this is why a general operational risk has also been included in the calculation of solvency requirements.
The Solvency Capital Requirement (SCR)

By adequately mixing their exposures, insurers can mitigate the total risk of their portfolio. For example, the risk of longevity can be tempered by simultaneously offering policies that cover mortality risk. In non-life business, the main risk is related to the adequacy of technical provisions, and it is divided into many components. Each component, as we have seen in the preceding paragraph, has its own effect on the capital requirement. Aggregating them with appropriate correlation matrices, to take the effects of diversification into account (see box), the Solvency Capital Requirement (SCR) of the company is obtained. Solvency II was constructed to take a continuously moving business reality into account. The companies shall update the requirement calculation once a year, or more frequently if their risk profile changes, and shall formulate their estimates using - as a time reference - the successive twelve months from the moment of their recognition. In any case, undertakings shall monitor their requirement on a continual basis.

The calculation of the SCR

![Diagram showing the calculation of the Solvency Capital Requirement (SCR)]

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SCR = NAV_0 - NAV_1
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Risk diversification and mitigation

Basically, Solvency II has done nothing more than replicating and making the “best rules” of the insurance profession systematic in its own models. Principles of mitigation and diversification have always been at the base of the insurance industry. Their importance is intuitive. If a company covers one single risk, and that event happens, the consequence may ruin the company. If, vice versa, the same company cedes a portion of its risks to others, the effects of that unlucky event will not be so deadly to its accounts. The most traditional risk mitigation instrument is represented by co-insurance and by re-insurance. When, for example, an undertaking ensures an airplane - the same applies for any coverage of a significant amount - a large part of that premium (and of the relative risk) is ceded to other companies, or to a re-insurer, to mitigate the impact of a possible accident. Re-insurers are a small club, formed of companies with particularly robust economic shoulders. The three major worldwide re-insurers cover a significant portion of risks of the entire planet. In that case, diversification happens within their portfolios. Let’s suppose that a group covers earthquake risks in Latin America, Europe and Asia. Now, it is quite unlikely that a seismic event will happen contemporaneously in these three areas, so the diversification of that risk produces a positive result on total exposure. Over the course of years, the principle of diversification has been endorsed by finance. Diversifying investments, as any good manager knows, reduces the risk of ruinous loss. Now, also the Solvency II regulation has adopted it among its pillars. The new prudential discipline includes correlation matrices in its armaments, in which, taking into consideration the time series available, different risks are mixed together so as to appropriately reduce the exposure of a total portfolio and the corresponding solvency requirement. It may be observed here that the true function of the prudential regulation is to provide the proper incentives so that insurers follow the best practices of their industry. In this case, the incentive represented by a reduced capital requirement induces the insurers to behave well.
A system of variable geometry

The path towards Solvency II has required an extraordinary organisational effort for the insurance industry in these years, and a notable investment of resources to establish and test the new requirements imposed by the regulation. However, a small company that works just in one insurance business, also from the supervisory point of view, does not have the same needs of a large international group that is active in various businesses. For these considerations, Solvency II allows the definition of different solvency requirement calculation methods, to take into account the different complexities of the company structure. An insurer may determine the Solvency Capital Requirement through the standard formula, which has been briefly described in these pages or, alternatively, may use an “internal model” that better reflects its own specific risk profile. This last model may be used for all the businesses included in the company’s perimeter, or just part of them, to cover some risk modules or business sectors of the undertaking.

The internal model is not simply an alternative method to calculate the SCR. It must satisfy numerous and strict requirements demanded by the regulation, with active involvement of the board of directors. At the end of this path, it requires the specific authorisation of the Supervisory Authority (IVASS in Italy) that, in case of a group operating in other countries of the European Union, decides, together with the other Authorities involved in group supervision.

![Risk sensitivity pyramid diagram](image)

**Solvency Capital Requirement - Different models**

- **Standard formula**, internal models, USP
- **Internal model**
- **Standard formula with application of specific parameters (USP)**
- **Standard formula with simplified methods**
- **Standard formula and partial internal models**

**The key word**

**USP: the third way to calculate the solvency requirement**

In the effort to adapt the regulatory obligations to the specific reality of an insurance undertaking, Solvency II has provided an intermediate solution for the calculation of the solvency requirement. Insurers that do not intend to fully adopt an internal model, may still adapt the standard formula to their business characteristics. They may use, in particular, their specific parameters (USP - Undertaking specific parameters), calibrated to take the relative features of their own risk portfolio into account, to calculate the risk modules for life assurance, non-life insurance, and health insurance. In this case as well the undertakings shall obtain specific authorisation from IVASS.
**SCR coverage**

We are nearly at the end of our illustration of the first pillar. Once the amount of required supervisory capital has been determined, the regulation precisely indicates the eligible elements to cover the capital requirements. In the first place, they are own funds of the insurance undertaking, that is, the excess of assets (investments of the company) compared with its liabilities (technical provisions). These resources may be summed with the subordinate liabilities issues by the insurer. They are, in practice, bonds considered “almost capital”. Those who buy them obtain a much higher yield compared with that guaranteed by normal corporate bonds, but on the other side, they are at the bottom of the creditors list, just before shareholders, in case of bankruptcy of the company that issued them. For these characteristics, they are assimilated - also for prudential purposes – to risk capital, with which they share many characteristics, notwithstanding their bond nature. The expected profits on future premiums are allowed, subject to certain conditions, to be taken into account for the coverage of the solvency requirement, among the own funds of an insurance undertaking. Ancillary own fund items are subject to IVASS authorisation, and are off-balance sheet items represented, for example, by called but not paid capital, or letters of credit or other legally binding obligations.

**Own funds - Identification**

Own funds covering capital requirements are composed of:

**Basic Own funds**
- Excess of assets on liabilities
- Subordinated liabilities
- Adjustments in the reconciliation reserve:
  - Participations in financial and credit undertakings
  - Ring-fenced funds
  - Expected profits in future premiums

**Ancillary Own funds**
(subject to prior approval by the supervisor)
- Off balance sheet items which may be used:
  - Called but not paid capital
  - Letters of credit
  - Other legally binding obligations

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**The key word**

**SCR = Solvency Capital Requirement**
Amount of solvency capital required by the Solvency II regulation.

**SCRR = SCR Ratio**
Ratio between own funds and the SCR.
Values above 100 indicate that the own funds are sufficient to cover the capital requirement.
Pay attention: sometimes this ratio is also indicated with the acronym SCR.
The Minimum Capital Requirement (MCR)

As we have seen, determining the standard capital requirement (SCR) is a laborious action that requires complex calculations and rigorous validation procedures. To manage this complexity, regulators decided it was appropriate to establish an annual frequency for its update. This does not negate that in the course of the year insurers must certify having at least a minimum base of prudential capital. This function is fulfilled by the second capital ratio provided by the regulation. It is the Minimum Capital Requirement (MCR). It is calculated every three months, and an insurance undertaking shall at least reach this minimum capital requirement to continue to operate.

The mechanism for determining the amount recalls the prior supervisory system, however adapted to the new Solvency II environment. In practice, the minimum capital corresponds to a percentage of the own funds of the undertaking in relation to some parameters (net premiums and technical provisions), calibrated to take account of their risk (see figure in the opposite page). The MCR is included between 25 and 45 percent of the SCR, and the regulation also sets an absolute minimum level (for example, €3.7 million for life undertakings and €3.6 million for re-insurers).

Only top quality elements are eligible for MCR coverage (ex. not ancillary own funds).

Pay attention to...

Own-funds of Italian insurers

At the end of 2015, Italian insurers had eligible own funds to satisfy the capital requirement equal to nearly €120 billion, 2.4 times the required level (SCR).
The Second pillar: the control system

Once the rules are made, they shall be applied. The Solvency II discipline does not limit itself to establishing the capital requirements that insurance undertakings shall hold, but operates in an active way on the entire company structure to ensure that the calculation and monitoring of the prudential ratios is seen as central in the reality of a company. In the intentions of those who designed the new regulatory scenario, the culture of risk - which also belongs to the history of the insurance industry since its origins - shall become the real business engine. Or better yet, this is beyond doubt but Solvency II strives to design the appropriate incentives so that the insurance managers are fully aware of them. The second pillar of Solvency that deals, as already stated, with the qualitative requirements of the new prudential system is expressly designed for this purpose.

The insurance sector is distinguished by one peculiarity: the insurer first collects the premium, and later, even after quite a long time, provides its service, reimbursing an accident or paying the policyholder the capital that it committed to paying him. Economists call this the inverted insurance business cycle, but the fact of having the customers’ money in advance - which are debts towards them - may push managers to a risky, if not even incorrect, behaviour: in order to achieve a greater profit, they may,

The inverted cycle of the insurance industry

Unlike what happens in the other sectors, the insurer first takes money, and then provides its service, or rather, pays claims in case of accidents or at the expiration of a policy.
in fact, knowingly or unknowingly underestimate the risks that they will be called on to cover in future. In a word, they could underestimate the amount of technical provisions. The new prudential discipline, which tightly connects the capital requirements to the insurance portfolio risks, removes this optical illusion. It shows an insurer that taking on high risks has an immediate cost, that of setting aside higher financial resources. And since the capital is a limited and expensive resource - investors provide it if they think they will be well remunerated - it is here that the new prudential discipline “obliges” the insurers to behave well, to do the right thing. Provided that, of course, the entire corporate structure is involved in this process. These are the reasons why the second pillar of Solvency II is so important.

The importance of corporate governance

The new regulatory architecture, after all, is “limited” to highlighting and making the principles already present in all the business law manuals binding, indicating the “good rules” of corporate governance that the insurers shall observe. The innovation is mainly in the fact that, normally, those precepts, in addition to the provisions contained in the civil code, are present in self-regulation codes that the undertakings are free to accept, or not. And they are directed most of all towards listed companies. In this case, instead, they are directly outlined in the new regulatory discipline, almost to emphasise the special role attributed to the insurance undertakings in function of their business. And they apply for all companies, listed or not, large or small. The number of provisions and procedures to observe is ample, but substantially related to some fundamental principles.

The objective of a good corporate governance system is to attribute precise responsibilities to each company body, and reach an effective balance between management and control powers.

Governance

“Member States shall require all insurance and reinsurance undertakings to have in place an effective system of governance which provides for sound and prudent management of the business. That system shall at least include an adequate transparent organisational structure with a clear allocation and appropriate segregation of responsibilities and an effective system for ensuring the transmission of information. [...] Insurance and reinsurance undertakings shall have written policies in relation to at least risk management, internal control, internal audit and, where relevant, outsourcing. They shall ensure that those policies are implemented.” (article 41 of the Solvency II directive)

In Italy, due to the effect of the secondary regulation issued by IVASS, these precepts have been introduced for a long time.
The centrality of the Board of Directors and “the appetite for risk”

Solvency II is engaged, first of all, in affirming the centrality of the Board of Directors (BoD) in the management of the undertaking and in the supervision of the internal control system. In the first place, it is the administrative body that defines the insurer’s “appetite for risk”. The effort to know oneself does not refer only to the nature of the company, with its competitiveness, or with the “animal spirits” of capitalism which the English economist John Maynard Keynes spoke about.

The Board of Directors shall perform an analytical task. Specifically, it shall evaluate the amount of capital that an undertaking is prepared to dedicate, or can dedicate, to risks that it has committed to covering. Knowing full well that each of them is associated with a capital requirement, under the Solvency II metric. It is a strategic function that requires the knowledge of the risks and the propensity to face them, the identification of tolerance thresholds and the definition of the maximum permissible exposure. The strategic plan of an insurer, the choice to enter a class of insurance, or to leave another, comes from these evaluations. At the time of Solvency II, the careful control of risks and the more efficient dosage of capital that the insurer has, become the main strategic levers in the hands of management.

The risk dashboard

Based on the current and forward-looking assessments of the risks, the administrative body determines the undertaking’s risk propensity in line with the goal of protecting its assets, by consistently setting the levels of risk tolerance it reviews at least once a year, to ensure their effectiveness over time.

- **Risk Appetite** (risk objective or propensity for risk): the risk level (total, or by type) that the company intends to assume for the achievement of its strategic objectives.
- **Risk Tolerance** (tolerance threshold): the maximum deviation from the risk appetite allowed; the tolerance threshold is fixed in such a manner as to ensure, in any case, sufficient margins for the company to operate, even in conditions of stress, within the maximum risk assumed.
- **Risk Profile** (actual risk): the actual risk assumed, measured in a specific moment in time.
- **Risk Capacity** (maximum acceptable risk): the maximum level of risk that a company is technically able to assume without violating the regulatory requirements or other obligations imposed by the shareholders or by the Supervisory Authority.

Risk Profile $<$ Risk Appetite $<$ Risk Tolerance $<$ Risk Capacity
This sort of “self-certification” is the assumption on which to build the entire corporate structure - whose configuration is approved by the same Board of Directors - together with risk management policies and the compliance function that presides over respect of numerous laws and regulations which the company is subject to. The Board of Directors also heads audit activities, which are the internal reviews aimed at verifying that all of the company bodies behave properly, and at discovering possible reprehensible facts. Not only. The Board of Directors, in the Solvency II context, also approves risk measurement and management policies, as well as contingency plans, plans on technical provisions calculation and re-insurance and other risk mitigation technique plans. A particularly delicate task concerns, finally, the fulfilment of professional and good repute requirements by Board Members, top management and persons responsible for the control functions. These, too, are rules covered by a specific company policy approved by the Board of Directors.

The company guidelines provided by the administrative body find application in the entire company structure, both for management and control functions. Once again the new discipline gives precise provisions so that each body is invested with specific responsibilities. Among the most important news introduced by Solvency II, there is the elimination of the appointed actuary, replaced by a specific function in consideration of the importance that the statistical-actuarial calculations play in the appropriate identification of company risks.

The role of ORSA

Although the name in Italian reminds that of a constellation, in the new Solvency II regime, that term indicates rather the North Star of controls, the tool shared among companies and supervisory Authorities to make the process of construction and verification of solvency requirements take place according to a precise plan. In the context of the European legislator, ORSA, Own Risk and Solvency Assessment, is inserted fully into the overall set up of risk management. The Solvency II directive establishes that ORSA be used to evaluate the risk and company solvency, that the results are taken into consideration systematically for the strategic decisions of the company, and that are subject to a constant communication with the supervisory Authority. ORSA does not represent the only company management instrument available to managers. The supervisory Authorities, too, need it to scrutinise, in the context of supervisory processes, if the company has correctly evaluated its risks. In a dynamic prudential discipline characterised not by the imposition of a predetermined, or “static”, quantity of capital, but by the analysis of a company reality in motion and with a continual balance of economic safeguards necessary to maintain its soundness, there is a subjective aspect to consider. Notwithstanding the rigour of the methods, the analysis of those who estimate company risks and their coverage, may, naturally have some errors. And, naturally, the point of view of the observer can make the difference. In the new regulatory context, supervision plays the role of tutor towards company practices to ensure that they are appropriate and directed towards the best standards. Naturally, it does not replace the management function, but it constantly follows the decision making
processes of the undertakings. ORSA, having a shared methodology for the assessment and management of corporate risks, reduces the risks of subjective distortion on the part of the insurer, while, from the supervisors’ side, promotes a proactive role aimed at preventing crisis situations rather than intervening after the fact to repair the consequences. Differently from the previous prudential supervisory system, Solvency II does not impose quantitative limits, for example, to investments that the companies can make. What is important is that the management is aware of the risks of their choices, and they adopt higher risk management standards.

**Prudent person principle**

In particular, the undertakings must respect some fundamental principles. For example, in risk valuation, it is necessary to adopt the “look through” method. It is a type of lens that allows the undertaking to gain awareness and confidence with risks that hide behind and within complex financial structures that may become important in the presence of detonating factors. In the subject of financial investments, the companies must respect precise guidelines. They direct their choices to assets characterized by appropriate levels of security, quality, liquidity and profitability. They build their plans so that the duration and the characteristics of the investments are consistent with the nature of the insurance obligations. Derivative products are used only for risk coverage and a better financial management. Their use for speculative ends is prohibited. In their decisions, the insurer must behave like a good family father, respecting the “prudent person principle”. As we see, these best practices are well known in the world of finance. The novelty, as we have observed, is that Solvency II translates them into binding behavioural rules.
Stress test

These are simulation exercises aimed at measuring the ability of an undertaking to face adverse scenarios. In the finance field, stress tests are used by intermediaries to manage credit, market, operative risks, etc., and by supervisory Authorities as an instrument of supervision. They allow evaluations and estimates of some reliability on the sensitivity and vulnerability of the individual intermediaries (micro-prudential goals) and the financial system as a whole (macro-prudential goals).

The stress tests are typically created in reference to a plurality of contexts, each characterised by a different level of adversity: for example, a scenario of stress on the securities market may be represented by a fall in stock quotations of -39% compared with current values. More complex scenarios regard a plurality of risks (stocks, taxes, credit...).

The results of the simulations are represented by a measurement of the effects that the single scenarios determine on predefined reference variables (for example, yield, liquidity, net assets).

There are three families of stress tests to keep well differentiated in the Solvency II world. The first is necessary to calculate the SCR. The second is defined and used by companies in the so-called ORSA environment. The third is established by EIOPA in the exercises that the European regulator periodically requires insurance undertakings to perform to verify their “vulnerability” (see box).

Stress tests of European regulators

As always happens, one learns more from adversity. The 2008 financial market crisis, followed in 2010-2011 by the tensions in the sovereign debt of some countries in the Euro area, has represented a strong warning to the regulatory Authorities throughout the world. Since then, those who design the market supervisory regulations have tried, in the first place, to imagine the most distressing scenarios to check, in those stress situations, the strength of the safety net. It has also happened in the insurance industry, where the European authority, EIOPA, has conducted different quantitative exercises over the years to assess whether the capital safeguards established with Solvency II were sufficiently robust to survive in extreme situations. The stress test performed in 2014, which imagined a severe financial crisis aggravated by a prolonged situation of low interest rates, involved more than 55% of the European insurance market. It showed, in general, that the continental insurance industry was sufficiently capitalised and, in normal situations, 86% of undertakings were able to cover at least the SCR.

In May 2016, a new exercise was announced that seeks to enlarge the range of European insurers involved to 75%. The stress test will consist of evaluating the resilience of the insurers to two adverse financial scenarios: a first one focused on the hypothesis of a further decrease of the returns curve compared to year-end levels; a second one, called the “double hit”, in which a strong devaluation of all classes of important investments - bonds, stocks, funds, real estate - is added to the first scenario.
The Third pillar: all the information to regulators and market

The market discipline

We behave better if we “must”, if someone is watching, with curious faces, what we’re doing. In an open society, this someone, for undertakings, is the market. The life-blood that makes external scrutiny of the market possible is information. The third pillar of the new prudential supervisory system of insurance undertakings has been constructed on this basis. Beyond a more accurate method to measure company risks, and put appropriate capital provisions in place, and in addition to an articulated system of internal controls, market discipline has been considered a fundamental instrument so that undertakings do not stray from the right path, and thus avoid ending up in default.

It has already been observed that trust represents a fundamental ingredient of the insurance business. Now, the more transparent and prepared to provide information on itself a company is, the more its clients, investors and creditors will be prepared to trust it and follow its path. Solvency II outlines a dense network of information that shall constantly connect an insurance undertaking to the supervisory authorities, and no less importantly, to the market.

We will see in detail what these obligations consist of. What is now interesting to note, is that the new discipline imposes a set of information on the insurers, for quantity and quality comparable to that which characterises listed companies.

The companies have an ambivalent relationship with information. They need it, of course, for assessing market opportunities and building their businesses, and are available to give it to the public when it gives prestige to their businesses. They become alarmed, however, when they are afraid that the information may favour a competitor (and they jealously protect it), or in the case of “bad” news, when they believe that the spread to the public of information critical of the company may aggravate or even impede the solution. It is this “prejudice” that Solvency II, and the new approach to supervisory activity in general, seeks to combat. The verb “understand”, after all, does not only mean to know, but to “accept”, so that the more a company can communicate the positive, and even the more problematic aspects of its reality, the more the market is prepared to follow it, “for better or for worse”, so to speak. From the supervisors’ point of view, in addition, having a good flow of information means to perceive crisis factors in advance, and indicate necessary countermeasures before the crisis explodes. In a word, to have a proactive attitude on the theme of supervision, oriented towards prevention, more than management, of company crises.
Information to the market

Every company is already subject to the obligation - provided by the civil code - to publish its accounts every year. This obligation is added to the progressively stricter standards, in case a company decides to list its stocks or bonds in the stock market. They shall, in that case, among other things, draft semi-annual financial statements and, in general, publish “privileged” news regarding themselves as soon as possible (news that may have an impact on stock prices). The identity of their stockholders, as well, is public information when the share capital exceeds the threshold of 3%. With Solvency II, in addition to all this, insurers will be obliged to make public, every year, a special report on their financial condition and solvency (SFCR, Solvency and Financial Condition Report). That document will contain information on:

1) Type of business and performance

2) Governance

3) Risk profile

4) Valuation criteria

5) Capital management

The perimeter of data subject to the transparency obligations is quite vast. The Solvency II directive however permits some limited exceptions. For example, when the publication of information is susceptible to giving competitors of an insurer “significant undue advantages”. Or when the insurer is obliged to confidentiality due to agreements with its contracting parties. If a company is listed, a part of the information of the SFCR is
already available to the market (such as that on corporate governance), but, for example, on company risk analysis and the operative business of the insurers, new regulatory obligations represent a significant step forward in the information standards, and contribute to promoting much deeper awareness of European insurance. It will represent a sort of litmus test of many values of the company financial statements that, calibrated to the risk, will demonstrate their actual consistency.

Information to the supervisors

The same information given to the market, but with a higher level of detail and frequency, is the subject of the reports that the insurers must send to the supervisory Authority. It is, in particular, the Regular Supervisory Report (RSR) of a qualitative nature, produced every year, accompanied by documents containing data on the main company parameters. The quantity of numbers and information that shall be transmitted is significant, and regards every important aspect of the business of an insurer. The ORSA report is also included with the obligatory documentation, as well as the annual accounts on how the calculation method has been implemented, and the verification of the solvency requirement (see above). The information to transmit to the supervisor will be provided on a regular basis (annually, quarterly), or following a “predefined” event or, in any case, upon request by the supervisor. The insurer shall adopt a written policy for reporting, and use supervisory reporting forms harmonised at a European level. Small insurers, in compliance with the proportionality principle, may use some exemptions from quarterly reporting obligations, or in relation to specific requirements (for example, the detailed investment list).

Data timing

The new reporting obligations imposed on insurance companies will need to be fulfilled within precise time limits specified by the regulations. At the end of the transitional period, which will end in 2020, the Solvency and Financial Condition Report, and the Regular Supervisory Report, shall be published within 20 weeks from the date of the closure of the financial year, Annual quantitative reports for the supervisory authorities within 14 weeks from the date of the closure of the financial year, and quarterly data within 5 weeks. At shorter intervals (2 weeks), supervisors must receive the ORSA, the self-assessment on the risks and solvency. In 2016, the year that the new regulation entered into force, the companies had the obligation to send a prospectus containing the valuation of assets and liabilities to IVASS within 20 weeks from the beginning of the financial year, as well as the minimum capital requirement (MCR), the solvency capital requirement (SCR) and the evaluation of the own funds eligible for coverage of the capital ratios.

The key word

Predefined event

There are events that may substantially change the risk profile of an insurance undertaking. In these cases, there is the specific obligation to immediately inform the supervisory Authority. It is naturally impossible to predefine a complete list of such events, however EIOPA (the European Insurance Supervisory Authority) has provided some examples for guidance purposes.

The predefined events include: changes in business strategy, significant internal reorganisation, important legal cases, significant changes in the level of own funds or the evaluation of the Solvency capital requirement, the Minimum capital requirement, or the technical provisions.

New and emerging risks are also numbered in this same category, as well as significant compensation that the company is required to pay, and criticality in corporate governance structure of the company.
What changes for consumers

The new prudential discipline of the insurance industry may be considered as a self-awareness tool at the disposal of the companies to know and better manage the risks of their business. The capital safeguards associated to those risks - in practice, the solvency margin of the company - represent the indispensable corollary of the new system. The fact of placing the risk culture as the cornerstone of corporate life - from the administrators who define the strategies, to the managers that execute them, to those who are responsible for the checks, and even to those who distribute the policies to the public - designs an inherently more protected environment for the conduct of insurance business.

Also relevant, for the undertakings as well as the consumers, is the fact of being able to count on a system of rules that are harmonised at a European level. The first Community directives regarding insurance go back to the 1970s (to 1973 for non-life insurance, and 1979 for life assurance), but they dealt with general layouts, with frequent exemptions and references to the national regulations. Successive Community regulation, in the 1990s, conferred a European passport to authorised insurers of a member state, allowing them to freely "export" their policies in the European Union area. But only with Solvency II in effect, the single market of insurance policies may finally claim to be created with maximum harmonisation of solvency and supervisory regulations. The competition between operators within the continent may occur based on a single set of regulations, the same everywhere. The activity of supervision, too, has been marked with homogeneous criteria, ensuring European consumers equal protections.

The national Supervisory Authorities - working side by side with EIOPA, the European regulator of the insurance sector - through constant monitoring of the insurers, may play a proactive role in impeding, and further, preventing, company crises, which represents the final goal of the regulation. In the new context, the supervisory activity, through the compass of company risks, will have more effective instruments with which to do their jobs, and obviously, consumers will also profit from the new regulatory context. Solvency II, however, does not exhaust the effort to further strengthen the protections. With a new Community directive (IDD, Insurance Distribution Directive), that came about in 2015, a notable step forward was taken in consumer protection standards in the distribution of insurance products. The directive does not only regulate the behaviours of traditional insurance intermediaries (agents, financial promoters, etc.), but has widened its range to include new locations as well (supermarkets, car rental, travel agents) in which policy offerings are developing. In the delegated acts currently under discussion obligations will be configured that are even more stringent for those who design the new insurance products and for those who distribute them. It is a sort of "product governance" (Product oversight governance) which affirms the "know your client" principle. In practice, for each type of policy, the producer is called upon to identify a specific target client, and the relative distribution strategy. Once again, they are marketing procedures already in use in insurance companies but which, in this new context, should be used by all of the undertakings, and well specified to consumers and the supervisory authorities.