



EIOPA-BoS-18/527

21 December 2018

Opinion on non-life cross border insurance business of a long-term nature and its supervision

1. Legal basis

- 1.1. The European Insurance and Occupational Pensions Authority (EIOPA) provides this Opinion on the basis of Article 29(1)(a) of Regulation (EU) No 1094/2010¹. This Article mandates EIOPA to play an active role in building a common Union supervisory culture and consistent supervisory practices, as well as in ensuring uniform procedures and consistent approaches throughout the Union by providing opinions to competent authorities.
- 1.2. EIOPA delivers this Opinion on the basis of Directive 2009/138/EC (Solvency II Directive)², Commission Delegated Regulation (EU) 2015/35 (Delegated Regulation)³ and EIOPA Guidelines on the valuation of technical provisions⁴.
- 1.3. This Opinion is addressed to the competent authorities, as defined in point (i) of Article 4(2) of Regulation (EU) No 1094/2010.

¹ Regulation (EU) No 1094/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/79/EC (OJ L 331, 15.12.2010, p. 48).

² Directive 2009/138/EC of 25 November 2009 of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (OJ L 335, 17.12.2009, p. 1).

³ Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (OJ L 12, 17.01.2015, p. 1).

⁴ EIOPA-BoS-14/166 EN

- 1.4. The Board of Supervisors has adopted this Opinion in accordance with Article 2(7) of its Rules of Procedure⁵.

2. Context and objective

- 2.1. EIOPA supports the freedom of establishment and freedom to provide services of insurance undertakings under Chapter VIII and the establishment of branches belonging to insurance or reinsurance undertakings with head offices situated outside the Union under Chapter IX of the Solvency II Directive. EIOPA believes that this reinforces the internal market and can provide many benefits to policyholders.
- 2.2. EIOPA is attentive to the convergence of supervisory practices and to building a level-playing field across the Union in the context of freedom of establishment and freedom to provide services. A similar level of protection should be assured to policyholders across the EEA regardless of the location of the undertakings' head office.
- 2.3. Against this background, EIOPA has identified potential obstacles in relation to the calculation and supervisory assessment of the solvency position of undertakings carrying out non-life cross border insurance business of a long-term nature. These activities are typically more uncertain than the majority of non-life business and require both knowledge of the local market specificities and actuarial skills for the calculation of the technical provisions and the management of the activity. Experience has shown that, because of their distinctive features and their long-term nature, these activities may appear more attractive to players that do not possess the knowledge and the skills required, potentially leading to localised underpricing, which can be to the detriment of policyholders if undertakings are ultimately unable to meet their liabilities.
- 2.4. It is not EIOPA's intention to add requirements on long-term cross-border business, but to highlight the complexity of these activities. This Opinion highlights the need for all parties involved to be aware of the local specificities when cross-border business is carried-out and sets out EIOPA's expectations to undertakings and recommendations to the competent authorities on three aspects:
 - 1) Expectations on technical provisions with a focus on the best estimate calculation
 - 2) Expectations on the key functions and the administrative, management or supervisory body ("AMSB")
 - 3) Recommendations on the supervisory review process and the collaboration between home and host Member State competent authorities ("Home NCA" and "Host NCA" respectively)
- 2.5. This Opinion also contains annexes, which provide examples and quantitative information on technical provisions for specific non-life long-term insurance

⁵ Decision adopting the Rules of Procedure of EIOPA's Board of Supervisors, available at: https://eiopa.europa.eu/Publications/Administrative/EIOPA-BoS-11-002_EIOPA-BoS-Rules%20of%20Procedure-Rev3.f.pdf.

obligations. The examples in these annexes should not be considered as the only way to calculate technical provisions. They are rather illustrations of good practices using appropriate information. Undertakings are responsible for the calculation of their technical provisions and the choice of appropriate methods. They can choose to calculate their technical provisions in a different manner than that provided in the annexes. Regardless of how the undertaking chooses to calculate their technical provisions, the requirement to justify them remain.

- 2.6. Further annexes may be developed in the future to provide additional examples on technical provisions calculation and quantitative information on non-life long-term business with distinctive features or a high degree of local specificities.
- 2.7. The objective of this Opinion is to ensure the appropriate application of the legal requirements and consistent supervisory practices with regard to technical provisions for non-life insurance obligations of a long-term nature.

3. EIOPA's expectations on technical provisions and best estimate calculation

Complete, reliable and up-to-date data

- 3.1. Pursuant to Article 82 of the Solvency II Directive, the data used in the calculation of technical provisions must be appropriate, complete and accurate. *Section 1: Data quality* of the EIOPA Guidelines on the valuation of technical provisions provide clarifications and guidance on data requirements. Ideally, undertakings would possess sufficient internal data to calculate the best estimate. Where data are not sufficient, they should be supplemented with external data. In cases where an undertaking is unable to collect sufficient data, then it needs to be prudent in setting assumptions and in choosing the method(s) used to calculate technical provisions, to reflect the additional uncertainty. The lower the data quality, the more prudent the expert judgment(s) should be.
- 3.2. In order to assess the data completeness and, in particular, whether they include sufficient historical information to assess the characteristics of the underlying risks, the data should be assessed against the time of occurrence and settlement of claims. Accurate data also means that data should be timely: out of date data may be inaccurate. Undertakings should collect data on claims pattern development in order to ensure reliable technical provisions. Inflation can also affect the accurateness of data, especially for long-term business.
- 3.3. In case where there is not sufficient historical information available within the undertaking, the undertaking should try and collect external information to ensure that technical provisions are not underestimated. External information could be of different types: it could be external data on the level and settlement of claims, which could then be integrated in the internal dataset; it could be external information on the appropriate level of technical provisions, which could then be used as a benchmark once the calculations based on internal data are done. For instance, external information may refer to industry-wide benchmarks, figures from peers, benchmarks provided by specialised associations (e.g. actuarial

associations), national statistics or statistics prepared by the competent authorities or even data relating to another line of business with a similar risk-profile.

- 3.4. Where external data are used, the methods and assumptions used to calculate the best estimate need to be consistent with these data, according to Article 34 of the Delegated Regulation and as provided in Guidelines 15 and 16 of the EIOPA Guidelines on valuation of technical provisions. For instance, where there is a difference in the granularity between external and internal data, the method to calculate the best estimate should allow for these different levels of granularity.
- 3.5. With particularly long-term business – where it is unlikely historical data captures all possible scenarios –, it is necessary to consider potential ‘events not in data’ (ENIDs) to ensure that the best estimate reflects an expected value of all possible scenarios. Several methods can be used to allow ENIDs to be considered, such as adjusting the underlying assumptions and parameters, using a simulation approach or adding an explicit loading. Undertakings are expected to consider whether there can be ENIDs, assess the impact and either allow for the range of possible outcomes through an upward adjustment to the best estimate for ENIDs or justify their decision if they do not allow for such adjustment.

Choice of method and assessment of the error

- 3.6. Pursuant to Article 21 of the Delegated Regulation, undertakings may use approximations to calculate their best estimate. Especially in such situations, they should give due consideration to ensure that the calculation method used is not disproportionate to the nature, the scale and the complexity of the risks. This implies that they should carry out a reliable assessment of the potential error introduced by the approximation(s) and a demonstration that this potential error does not lead to a misstatement of the technical provisions – see also *Section 4: Methodologies to calculate technical provisions* of the EIOPA Guidelines on valuation of technical provisions. In case this potential error cannot be assessed with sufficient reliance, the approximation used should lead to an amount of technical provisions that is at least as high as the amount that would result from using a proportionate method and should not lead to an underestimation of the risks inherent in the insurance obligations.
- 3.7. If undertakings were able to generate a full distribution of all possible scenarios of technical provisions, it is expected that – for the activities in the scope of this Opinion – it would result in a skewed distribution (see typically the insurance activities described in Annex I). Undertakings should choose the method that is most proportionate to the risks and most appropriate to the data available. For non-life activities, methods are often deterministic, which is not an issue in itself as long as undertakings reflect the uncertainty in their best estimate. For example, some undertakings include a loading via a tail-factor.
- 3.8. Pursuant to Article 30 of the Delegated Regulation, the cash-flow projection used in the calculation of the best estimate shall take account of all uncertainties in the cash-flows. In many cases of non-life long-term insurance business, the uncertainties in the timing of claims occurrence, in the time to settle the claims and in the severity of the claims can be significant. These uncertainties may be greater

in the case of long-term cross-border underwriting. These uncertainties lead to uncertainties in the final value of the technical provisions. In particular where there are incomplete data, parameters and methods to calculate the best estimate should be chosen prudently.

- 3.9. In such cases, the evaluation of the error introduced in the results of any method chosen to calculate the technical provisions, as required by Article 56 of the Delegated Regulation, is particularly important.
- 3.10. In order to measure the uncertainty in the parameters and the error introduced by the method used to calculate technical provisions, different methodologies could be used. Each of the different methods used to calculate the best estimate will have specific points of attention. For instance, methods using loss ratios are highly dependent on the level of premium and could severely under-estimate the best estimate for premium provisions in case of under-pricing or in certain phases of the underwriting cycle. If the historical dataset of payments is not sufficiently long to estimate ultimate losses, methods based on claims paid may lead to insufficient best estimate for claims provisions.
- 3.11. Against this background, the key parameters of the method chosen should be identified, the underlying assumptions of the methodologies should be validated and sensitivity analyses should be performed by the undertaking. Different methods should also be used as they provide insights on the degree of uncertainty. For instance, undertakings could compare the results obtained via exposure-based methods with those obtained via experience-based methods. In the assessment of the methods, graphical regression tools like residual plots can also provide useful insights. Other examples include: bootstrapping, backtesting, and stress & scenario testing.
- 3.12. In order to ensure that the method chosen does not lead to a misstatement of the technical provisions, the technical provisions should be calculated in a prudent manner, in accordance with Article 76(4) of the Solvency II Directive. Calculating technical provisions in a prudent manner does not necessarily mean that the most conservative methods need to be chosen in any case, but that the most appropriate and justified methodology(ies) are applied, which in particular sufficiently reflect the considerable uncertainty associated with the long-term business.

4. EIOPA's expectations on the key functions and the AMSB

AMSB

- 4.1. Before taking the decision to carry out a new cross-border insurance activity, the AMSB is expected to ensure that reliable information has been gathered on the local market specificities. In particular, information on the level of competitiveness, the usual underwriting and sales practices (e.g. specific distribution channels and outsourcing practices), the local legal framework and any cultural aspects that may influence underwriting practices are necessary to ensure that the requirements of Article 258(1)(c) and (d) of the Delegated Regulation are fulfilled. The pricing of the competitors is also a useful information, where it is possible to collect it. For

instance, specific conventions established between market participants for the settlement of the claims or that may influence the way business is conducted should be considered.

- 4.2. The AMSB should pay specific attention to the way business will be underwritten. For instance, cross-border business can be underwritten directly by the undertaking or via a broker or a general agent. Whatever the decision, the AMSB and the key functions should consider the impact in terms of data collection and hence on technical provisions. The way business is carried-out can increase risks and expenses (via fees and other costs).
- 4.3. The AMSB should continue to monitor the developments in the cross-border insurance activity with due care, given the potential high risks. In its role of control function, the AMSB may regularly request independent reviews on technical provisions. In that case, it is important that the review be carried out by an appropriate skilled person, with sufficient understanding of the local market.

Risk management function

- 4.4. According to Article 269(1)(d) of the Delegated Regulation, the risk management function has a specific role to play in assisting the AMSB in relation to strategic affairs such as entering into a new cross-border insurance activity. It should contribute – in co-operation with the actuarial function as per Article 272(6)– to the specific underwriting and reserving policies that will apply to the new activity, as required by Article 260(1)(a) of the Delegated Regulation. The specific risks of the activity should be also identified, mitigated and monitored in the business plan.
- 4.5. The ORSA is a useful tool to assess the risks of the cross-border activity. It should capture the fact that carrying-out cross-border business may increase risks, not least because of the possibility of the undertaking having less knowledge of the local specificities.
- 4.6. As provided in Guideline 11 of the EIOPA Guidelines on ORSA, the potential risks arising from the uncertainties connected to the calculation of technical provisions should also be included in the ORSA report. In the case of material non-life long-term cross-border insurance activity, the ORSA report should include an assessment of these risks, taking account of the link between the best estimate, the Solvency Capital Requirement (SCR) and the risk margin.
- 4.7. The risk characteristics of the cross-border business should be assessed as part of the evaluation of the appropriateness of the standard formula. If there is evidence that the risk profile net of reinsurance differs materially, then it means that the SCR standard formula for the premium and reserve risk sub-module may not be appropriate for that class of business. Where this is the case, undertakings should consider this, as part of their overall standard formula appropriateness assessment. Furthermore, where the overall assessment indicates that the SCR standard formula may be insufficient, undertakings should take actions, for instance via undertaking specific parameters (for standard deviations or for the non-proportional adjustment factor).

Actuarial function

- 4.8. In relation to its task of coordination and validation of the technical provisions, the actuarial function should ensure that any limitation in the data used has been considered and dealt with, as provided in Guidelines 9 and 10 of the EIOPA Guidelines on valuation of technical provisions. Should the limitation play a role in the level of technical provisions, the actuarial function should ensure that the technical provisions are not under-estimated, in accordance with paragraph 3.6 of this Opinion.
- 4.9. Should the ORSA conclude that the standard formula is not appropriate for the cross-border activity, this could have consequences on the risk margin. Indeed, the risk margin is calculated with the formula provided in Article 37 of the Delegated Regulation and relies on the projection of future SCR. If the SCR calculated with the standard formula under-estimates the actual risks, then the risk margin will also be under-estimated. Therefore, and should that be the case, the actuarial function should take measures.
- 4.10. The comparison of the best estimate against experience, which needs to be carried out at least once a year as provided in Article 264 of the Delegated Regulation, may be difficult for long-term lines of business. In such cases, the actuarial function should try to collect external information to validate the best estimate. For instance, relevant information may be provided by industry or actuarial bodies, by the Host NCA or even found in the local accounting framework. This information could give an indication of the expected uncertainty, keeping in mind the specific Solvency II valuation principles.

5. EIOPA's recommendations on the supervisory review process

- 5.1. Pursuant to Article 29 of the Solvency II Directive, supervision shall be based on a prospective and risk-based approach. The long-term nature of certain type of non-life insurance business may create specific risks, in particular in the calculation of technical provisions, in the results and the underwriting policy. Where this business is carried out from another Member State, risks may be exacerbated by the potential lack of knowledge of the local specificities. Therefore, the Home NCA should pay particular attention to specific issues.
- 5.2. In order for the Home NCA to perform an efficient supervision, it is necessary to gather information on the cross-border business carried out by the undertaking. The level of details sought should be influenced by the Host NCA's assessment of whether or not the activity represents an elevated risk, or whether it has particularly distinctive features (such as the activities described in annexes of this Opinion). For that purpose, it is essential that information be shared between the Home and the Host NCAs.
- 5.3. The Home NCA should assess whether the skills, knowledge and expertise of the undertaking's personnel, including the AMSB and the key functions, are sufficient to carry out such business. For that purpose, the Home NCA could compare the information gathered by the undertaking on the local specificities with the information the Host NCA has provided. Another element to take into account in

the assessment of the skills, knowledge and expertise of the personnel is whether the undertaking has experience in carrying-out similar business in another territory. Lack of prior experience does not necessarily mean an absence of appropriate skills, but it is an indicator that should be taken into account by the Home NCA and that may lead to a higher level of supervisory scrutiny.

- 5.4. The information exchanges should help the Home NCA to assess the capacity of the undertaking to underwrite and manage the specific business. The assessment needs to take account of the specific situation of the undertaking. For instance, its financial position; whether it is entering a new type of business; its underwriting policy, including outsourcing and remuneration of service providers since they could increase the costs. Background information on the local market, such as that contained in the Annexes, should be also shared by the Host NCA.
- 5.5. If there are doubts about the capabilities of the undertaking to carry out such business, a specific business plan should be requested by the Home NCA. It should contain, at least, information on the expected amount of new business, level of technical provisions and results. It should also consider different scenarios, and the capacity of the undertaking to meet its obligations under those scenarios. This will then allow the home NCA to analyse the comparison of the business planning results and level of provisioning with the actual ones. In the case of material deviations, the Home NCA should request the AMSB to take appropriate actions. The Home NCA could also request the undertaking to undertake an external, independent valuation or verification of the technical provisions by an appropriate skilled person, with sufficient understanding of the local market, as provided in Article 267 of the Delegated Regulation.
- 5.6. The Home NCA should pay specific attention to the level of technical provisions. Whether the business is carried-out directly or via a broker or a general agent could have consequences on data availability, hence on the best estimate as well. If the best estimate has been underestimated, there could be consequences for the SCR, risk margin and, in some cases, the adequacy of pricing.
- 5.7. If technical provisions are insufficient, the Home NCA should require the undertaking to increase them to an adequate level, as required by Article 85 of the Solvency II Directive. If the Home NCA concludes that there is a significant deviation as regards the SCR or the governance, then it should consider setting-up an appropriate capital add-on, as provided in Article 37 of the Solvency II Directive.
- 5.8. In case there is a material deviation between the specific business plan and the actual results, or if the technical provisions are likely to have been underestimated, the Home NCA should alert the Host NCA, so that consequences on the local market can be anticipated, if possible.

6. Monitoring by EIOPA

- 6.1. Six months after the publication of this Opinion, EIOPA will look into the supervisory actions taken by the competent authorities as a follow-up on this Opinion and provide further guidance via new annexes as necessary.

6.2. This Opinion will be published on EIOPA's website.

Done at Frankfurt am Main, 21 December 2018

[signed]

Gabriel Bernardino

Chairperson

For the Board of Supervisors

Annex 1 – Specific provisioning framework for French Construction Defects insurance

1. Overview of the French Construction Defects (CD) insurance market

- 1.1. French law requires that those involved in the building process are insured. This includes the building owners, builders (including sub-contractors / tradespeople) and architects.
- 1.2. There are two types of CD insurance, required by French law:
 - Building owners are required to have “**Building damage insurance**” (**BD**) (*Domage ouvrage* in French). BD insurer pays out immediately upon the identification of a valid claim, before liability is apportioned between the different parties. This guarantee can be thought of as pre-financing the cost of damage before any search of responsibilities.
 - Builders are required to have “**Construction liability insurance**” (**CL**) (*Responsabilité civile décennale* in French). This insurance reimburses the BD insurer if the builder is found to be liable for the damage.
- 1.3. The interactions between BD insurer and CL insurer are presented in the following diagram:



Diagram 1: interactions between BD insurer and CL insurer

- 1.4. When a claim file is opened by the CL insurer, an equivalent claim file is also opened by the BD insurer. In that way, the settlement of both insurance undertakings is very similar.
- 1.5. An industry agreement (called “convention CRAC”) has been established between BD and CL insurance undertakings. This agreement is open to all construction players (including foreign players) who can freely decide whether to join it. The goal of this agreement is to:
 - decrease the claims handling costs for attritional losses (<112 k€ since 2008) by mandating a unique expert for both BD and CL insurance undertakings;
 - introduce a maximum delay of payment from CL insurance undertaking to BD insurance undertaking.
- 1.6. French undertakings have typically used the following Solvency II LoBs in their reporting:

	Solvency II LoB	Explanation
Building Damage insurance	Fire and other damage to property insurance	SII does not have Lobs defined specifically for construction guarantees. These guarantees are therefore mapped to classical guarantees, covering damage (for BD insurance) & liability (for CL insurance).
Construction Liability insurance	General liability insurance	

Table 1: lines of business

- 1.7. In accordance with the requirements of the regulation, the calculation of the best estimate should ideally be made at a more detailed level than at the level of LoBs. The calculation level could be decided upon the following basis: amount of claims (separation of attritional losses from severe losses), whether or not the CRAC convention has been signed, etc.
- 1.8. CD insurance covers any damage linked to the stability and integrity of the building (i.e. significant defects, rather than minor accidental damage). Coverages are for periods of 10 years following completion of the building, as illustrated below⁶ (diagram 2), and the undertaking needs around 25 years (10 + 15, see below) of data to have the full picture of the development of claims paid (manifestation & settlement). More precisely, the full picture requires 25 years for BD insurance, and up to 30 years for CL insurance.
- 1.9. Key points on the timeline of CL insurance:
- The **year of site opening** (*Date réglementaire d'ouverture chantier "DROC"* in French) or Underwriting year - for the provisioning, claims are attached to the DROC;
 - The **completion date** of the building work that marks the start of the period of 10 years during which the damages could become visible. EIOPA notes that for some larger projects this can be 3-4 years after the date of site opening;
 - **The date at which the damage becomes visible** (*Date de manifestation* in French) – the damage has already occurred before the completion date (i.e. during the building period) but it becomes visible to the building owner after the completion date (see diagram 3 below). The guarantees cover damages that become visible for 10 years following the completion date. Like many types of liability insurance, final claims' **settlement** can take many years (up to 15 years) after the date at which the damage becomes visible.

⁶ Building owners can also purchase a discretionary building damage insurance policy before completion, but it is not considered in this Annex.

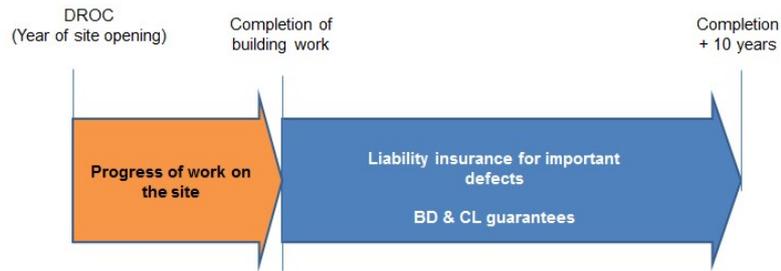


Diagram 2: progress of a construction site

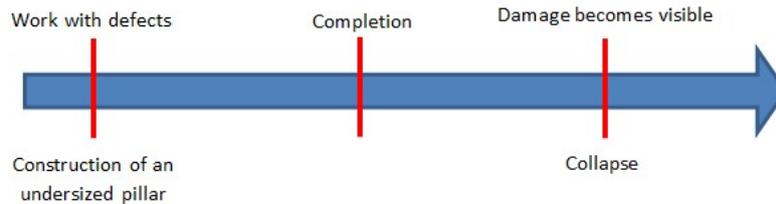


Diagram 3: important dates for the decennial guarantees

- 1.10. This French CL business is sold on a single premium 'risks attaching' basis (covering 10 years), rather than 10 separate years of cover, on a 'claims made' basis. This is why each claim is attached to the corresponding DROC. However, the premium can be adjusted at the end of the project, especially for CL insurance where the premium very often depends on the final cost of the construction site.
- 1.11. As insurance premiums are paid at the beginning of the contract, a mispricing would be identifiable only after several years, hence risk of under-provisioning is greater than for many other types of non-life business. To manage this risk, undertakings need to ensure that their technical provisions are sufficient to allow for claims that are "not yet visible". As explained above, these "not yet visible" claims correspond to damages and flaws that occurred during the building period, but will become visible to the building owner after the completion date. These "not yet visible" claims should therefore be included in the best estimate for claims provisions. Undertakings that do not possess a sufficiently long historical set of data (or equivalent information) may under-estimate more easily their claims provisions. This is because they either have more difficulties to assess or do not account for the likelihood that a damage has incurred and will become visible.
- 1.12. Let's take an example of a "not yet visible" claim: it can take several years for building defects to manifest themselves, for example, if a building were to be constructed with faulty blocks, the damage is done during the construction phase but could take several years before cracks began to show in the walls.
- 1.13. To avoid undertakings not taking into account of these incurred claims, they are required to hold an additional provision called the "PSNEM" under French GAAP rules. This provision was intended to capture the uncertainty around this specific non-life business. This provision was aiming to achieve sufficient IBNR. This is because the policies are "risk-attaching" and not on a "claims-made" basis (like the example in Annex II).

1.14. This results in the situation where the best estimate for claims provision is made up of three parts:

Situation	Provision for claims outstanding
1. Damage is visible and has been reported to the undertaking.	Provision for claims outstanding (usually calculated on a case-by-case basis) + IBNER
2. Damage is visible, but has not been yet reported to the undertaking.	IBNYR provision for <u>visible claims</u> . This IBNYR is normally rather small because building owners usually report the claim as soon as a damage is visible
3. The building work is complete. We are in the decennial period and the damage has occurred but no damage is visible yet	IBNR provision for not yet visible claims

Table 2: decomposition of the BE for claims outstanding

1.15. Statistics compiled on the French market show that, for an undertaking that has started to underwrite 3 years ago, the share of the IBNR provision for not yet visible claims is approximately 95% of the total best estimate for claims provision. For an undertaking that has started to underwrite business 5 years ago (respectively 10 years ago), this share becomes 85% (respectively 65%). For an undertaking with a stable activity, this share is approximately 50%.

2. Key figures of French insurance construction market

2.1. This sub-section provides quantitative information on BD and CL activities. This information may be considered useful for validating the technical provisions, in particular where the undertaking does not possess sufficient internal data. The French supervisory Authority has performed an analysis on data pertaining to the French construction insurance market for the 2015 financial year. The information stems from a sample of 15 undertakings, which represent 96.7% of the direct business market (without reinsurance activity) in France for BD insurance and 92.4% for CL insurance. The sample is therefore highly representative of the BD and CL businesses.

2.2. Four ratios were analyzed for each type of activity. For their computation, several underwriting years have been selected (between 2002 and 2015). For each undertaking and for each underwriting year, the following four ratios have been computed and are being presented in table 3. Ratio 1 provides an overview of the profitability of BD and CL insurance activities (with a technical combined ratio excluding investment products). Ratios 2, 3 and 4 provide an overview of the different costs and recoveries, as well as an indication of their level in the French construction market.

	Building damage	Construction liability	Comments
Ratio 1 = "Total cost of the claims⁷ (with all expenses, including expert costs) net of recourses received or to be received and net of acquisition cost" / "written premiums net of acquisition cost"	Mean ratio = 91.6% Median ratio = 91.5% STD ⁸ = 22.4%	Mean ratio = 132.4% Median ratio = 125.7% STD = 24.2%	This ratio is similar to a combined ratio (excluding acquisition costs) This ratio does not include investment profits, hence CL insurance appears to be unprofitable here (ratio over 100%)
Ratio 2 = "Acquisition costs of the contracts" / "Written premiums"	Mean ratio = 13.5% Median ratio = 13.1% STD = 6.7%	Mean ratio = 10.4% Median ratio = 9.0% STD = 4.8%	For undertakings that underwrite business directly (without intermediaries) acquisition costs are quite stable. In case of intermediaries, acquisition costs are higher.
Ratio 3 = "Handling cost of the claims incurred until 31.12.2015" / "Total cost of these claims gross of recourses"	Mean ratio = 7.5% Median ratio = 5.9% STD = 4.4%	Mean ratio = 7.5% Median ratio = 8.1% STD = 2.7%	This ratio is computed on incurred claims, so that one has an idea of the level of real handling costs. The expenses of expertise are not included in the handling costs. French undertakings include the expenses of expertise in the file by file provisioning.
Ratio 4 = "Recoveries received and to be received" / "Total cost of these claims gross of recourses"	Mean ratio = 44.4% Median ratio = 42.3% STD = 10.7%	Mean ratio = 6.1% Median ratio = 3.8% STD = 7.5%	Recoveries are more important for BD insurers. Indeed, the BD insurer is pre-financing the cost of damages before any search of responsibilities.

Table 3: ratios on the French construction insurance market

⁷ The total cost of claims include all type of reserves, namely case reserves, IBNER reserves, IBNYR reserves and PSNEM reserves

⁸ Standard deviation

3. Example of provisioning on the French Market

- 3.1. This section provides one example (based on two methods) of how the best estimate for claims provisions corresponding to the part of IBNR for claims that are not yet visible could be calculated. This example use market-wide data collected for CL insurance.
- 3.2. As provided in the Opinion, given the long-term nature and the uncertainty of this class of business, the need for complete, accurate and reliable historical data is a key asset to avoid under-provisioning risk. Data provided in this section could complete an internal dataset that is not sufficient. Indeed, French undertakings have found the risk to be relatively stable over the years, such that the dataset of this section appears relevant, in the absence of sufficient undertaking-specific data. Undertakings which may want to use the data and the example provided in this section will, however, need to validate the underlying assumptions.
- 3.3. In practice, French players have collected their own data (more than 30 years of historical data). That does not mean that other sources of information may not be used, as long as the undertaking justifies it: indeed the practice of applying a tail-factor to traditional actuarial techniques aims to achieve the same outcome.

Claim appearance pattern

- 3.4. Both examples use the following "claim appearance pattern" (i.e. pattern of claims becoming visible) and "claim settlement pattern" established from market-wide data stemming from French undertakings. Although the following patterns have been derived for CL activity, they do not materially differ from the patterns that would be derived for BD activity. In practice, the following patterns could therefore be used for the calculation of the best estimate for both activities.

**Cumulative French market claim appearance pattern for CL insurance
(derived from data provided to the French supervisory Authority) in percentages**

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2.5	7.5	15.5	25.5	36.5	45.5	53.5	61.5	69.5	76.5	84.5	91.5	94.5	97.5	100.0

Table 4: cumulative claim appearance pattern

**Cumulative French market "claim settlement pattern" starting from the
underwriting year for CL insurance (derived from responses to a questionnaire from the
French supervisory Authority) in percentages**

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0.2	1.5	4.0	8.0	13.4	19.5	26.6	33.9	41.5	49.3	57.7	65.5	72.0	77.0	81.4
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
85.3	88.2	90.7	92.7	94.1	95.4	96.5	97.3	97.8	98.4	98.7	99.0	99.3	99.5	100.0

Table 5: cumulative claim settlement pattern

- 3.5. From the claim settlement pattern, one can see that the duration⁹ of settlements is around 11 years, which highlights the long-term nature of this activity.
- 3.6. The claim settlement pattern could be used to roughly approximate the total amount of provision. For instance, if one has paid a certain amount after five years ("claims paid 5y"), the total amount of the technical provision (provision for visible and not-yet visible claims) could be roughly approximated with:

$$(100\% - 19.5\%) \times \frac{\text{claims paid 5y}}{19.5\%}$$

- 3.7. The example presented below provides the best estimate provisions for claims that are not yet visible.

Example:

- 3.8. The best estimate for claims that are not yet visible is:

$$BE \text{ for claims not yet visible} = \sum_{n=1}^{14} \max(b_n \times \mathbf{B}_n, a_n \times \mathbf{A}_n)$$

- 3.9. This example is based on two methods: the "claim method" and the "premium method", which are both detailed below. The examples provides the best estimate for claims that are not yet visible for a given DROC n . Portfolios are usually composed of contracts with several DROC, therefore the computation of the best estimate needs to be done first for each DROC and then for the entire portfolio by summing the last 14 "best estimate DROC". After 14 years, all claims are assumed to be visible and only the provision for outstanding claims would remain in the best estimate for claims provisions, if need be.

Method 1: method based on the claims

- 3.10. The best estimate for claims that are not yet visible is:

$$BE \text{ for claims not yet visible (for DROC } n) = a_n \times \mathbf{A}_n$$

With:

- n is the difference between the DROC and the development year
- \mathbf{A}_n equals the total cost of claim estimated on a file by file basis. This amount corresponds to situations 1 + 2 of table 2 for those claims that are visible at the end of development year n , minus salvage and subrogation costs. It corresponds to the sum of the best estimate plus the settlements of the visible claims.

⁹ undiscounted

- a_n are coefficients set out in the table below. They were calculated using assumptions on French market "claim appearance pattern", inflation rate and investment rate, but which have reduced impacts on coefficients:

n	0	1	2	3	4	5	6	7	8	9	10	11	12	13
a_n	0	0	3.40	2.00	1.40	1.00	0.70	0.50	0.35	0.25	0.20	0.15	0.10	0.05

Table 6: a_n coefficients for the claim method

3.11. For example, for year 2017, for claims not yet visible for the DROC 2013, we apply the coefficient $a_4=1.20$ ($4=2017-2013$) to the total cost of reported claims A_4 for the DROC 2013.

3.12. This method strongly relies on:

- The claim appearance pattern. Any undertakings seeking to use this method should assess whether its own claim appearance pattern deviates from the one presented above.
- The best estimate provisions for claims that are visible on a file by file basis (since there is no uncertainty on the settlements amount). Because of its weight, the provisions for outstanding reported claims is particularly important. The coefficients of this method rely on the fact that the undertaking is able to estimate robustly the provisions for outstanding reported claims. This assumption should also be assessed by any undertaking seeking to use this method.

Method 2: method based on premiums

3.13. This method is based on the written premium. The best estimate for claims that are not yet visible is:

$$BE \text{ for claims not yet visible (for DROC } n) = b_n \times B_n$$

With:

- n is the difference between the DROC and the development year
- B_n equals the written premiums net of acquisition costs for all the buildings completed in year n
- b_n are coefficients set out in the table below that correspond to "loss ratios": they correspond to the best estimate for claims that are not yet visible divided by the written premium. They were calculated by projecting the cash-flows from the French market "claim appearance pattern" and discounting them, using the following assumptions:
 - The coefficients assume that the written premium net of acquisition costs was set up to capture appropriately the risk, i.e. the risk is correctly priced.
 - Inflation rate
 - Investment rate

n	0	1	2	3	4	5	6	7	8	9	10	11	12	13
b_n	1.00	1.00	0.95	0.85	0.75	0.65	0.55	0.45	0.35	0.25	0.20	0.15	0.10	0.05

Table 7: b_n coefficient for the premium method

3.14. This method strongly relies on:

- The claim appearance pattern. Any undertakings seeking to use this method should assess whether its own claim appearance pattern deviates from the one presented above.
- The appropriate pricing of the risks: in case of under-pricing of the pure premium, the best estimate will be underestimated.
- The level of acquisition costs: this method assumes that they are in the market average – see also table 3 of section 2.

Comments and limitations

3.15. This example assumes that the French market claim appearance pattern is appropriate. This pattern has a strong influence on the coefficients a_n and b_n presented above and therefore on the final best estimate for claims provision. As a sensitivity analysis, if the claim appearance pattern is 1-year delayed (i.e all claims of year n were appearing in year $n+1$) then the best estimate for claims that are not yet visible would increase by approximately 10%. In the same way, the best estimate would decrease by approximately 10% considering the 1-year advanced claim appearance pattern.

Practice of the French market undertakings

3.16. French players (which are part of the sample for the study presented in section 2) have more than 30 years of historical data and have built their own methods. To compute the best estimate provision corresponding to claims that are not yet visible, French undertakings usually base their calculations on their own claim appearance pattern and project and then discount future cash-out flows.

3.17. The best estimate for claims that are not yet visible calculated with the formula in the example provides a result that is very similar to the same best estimate calculated by French undertakings with their own data and methods.

Annex 2 – Italian Medical Malpractice

1. General overview and key figures

1.1. Medical Malpractice (MedMal) occurs when hospitals, doctors or other health care professionals cause an injury to a patient through a negligent act or omission. The negligence can be the result of errors in diagnosis or treatment. In Italy, MedMal insurance covers are on a 'claims made' basis, i.e. compensation is paid only for claims reported for the first time within the coverage period. However, the event may have occurred up to 10 years in the past (the "retroactivity limit" introduced by the Gelli law of 2017, see below).

1.2. The Italian MedMal market is highly volatile and concentrated, with only few undertakings that underwrite (many of them are not Italian). There were € 585.2 mln of premiums collected in 2017 (46.5% public hospitals, 16.4% private hospitals, 37.1% professionals):

Risks	Premiums collected (€/mln)	Insured units	Average Premium (€)
<i>Public hospitals</i>	271.9	685	396,857
<i>Private hospitals</i>	96.1	4,067	23,640
<i>Professionals</i>	217.2	270,357	803
Total	585.2	275,109	2,127

Table 1: 2017 premiums and insured units per type of risks

1.3. As shown below, gross written premiums (GWP) trend for private hospitals is quite stable whereas professionals and public hospitals figures highlight opposite trends:

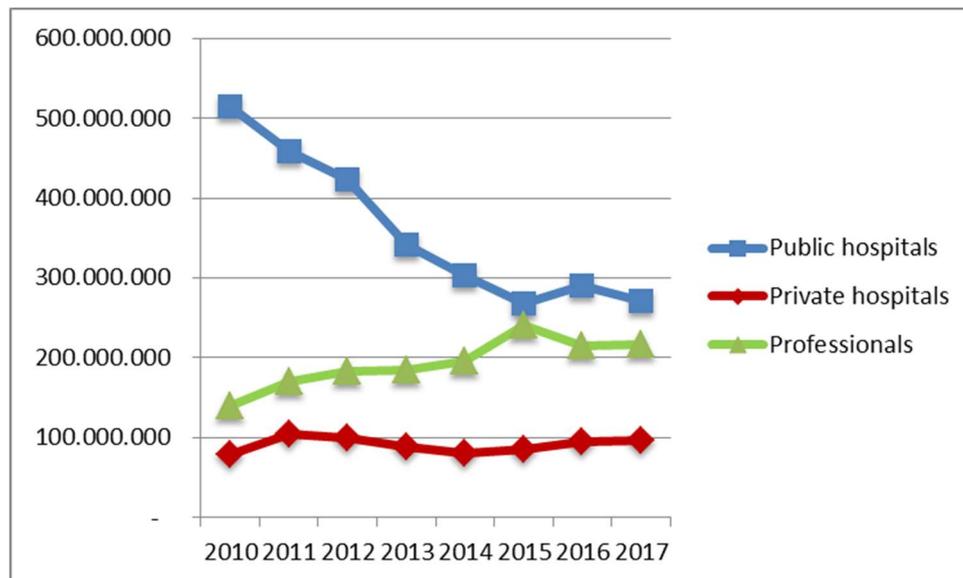


Figure 1: gross written premiums in euro per reporting year and type of risks

1.4. In particular, the important decrease in GWP for public hospitals is mainly due to the effect of self-insurance that increased significantly over the last years, overcoming traditional insurance, and also a consequence of the limited number of undertakings willing to underwrite the risk.

- 1.5. This type of business involves large claims with high volatility: it takes time for the medical condition to stabilise itself; it takes time to settle the claims and it is difficult to determine both who is liable and the quantum of the claim (a typical example is when there is an issue during childbirth).
- 1.6. The chart below shows the average cost of claims incurred in the 2017 calendar year:

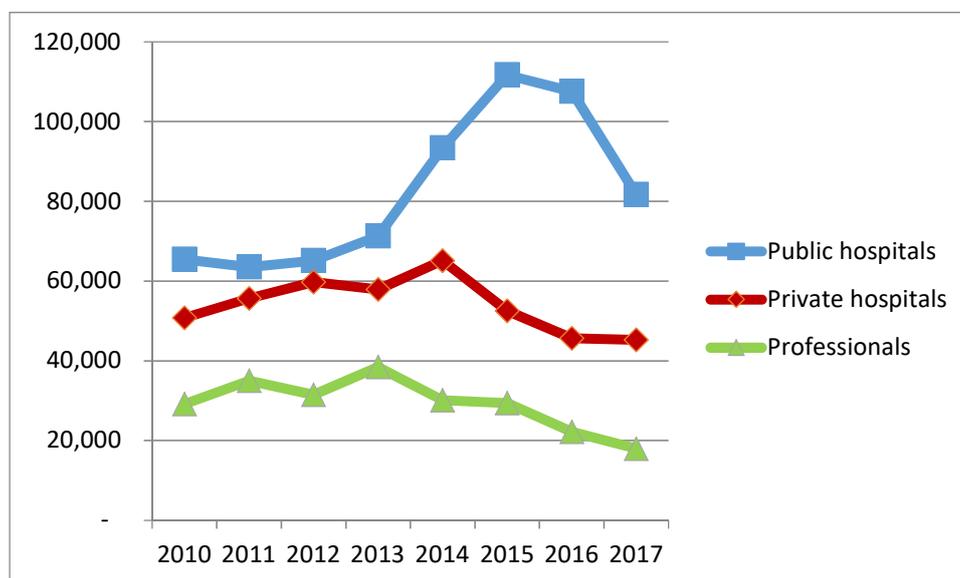


Figure 2: average cost of claims in euro per reporting year and type of risks

- 1.7. The average cost of claims does not identify a unique trend per risk and it is possible to notice a degree of stability only for the most developed generations (with a higher number of claims reported and settled). In fact, the evaluation of physical impairment is complex and adequate information is commonly not available immediately after the occurrence of the claim event. This is compounded by uncertainty in evaluating damages owing to frequent changes in court rulings in this field. The peaks for public hospitals identified for reporting years 2015 and 2016 are a clear example of the high volatility of the market. 2015-16 saw an increased use of self-insured retentions; as a result, only the larger risks were ceded to undertakings. This trend has begun to reverse in 2017, following the introduction of the Gelli law.
- 1.8. Over the last 10 years, Italian undertakings have progressively left the market and consequently foreign undertakings have become market leaders. The main reasons are:
- loss ratios have generally exceeded 100% (especially for public hospitals);
 - self-insurance is allowed and has been increasing;
 - the Italian legal framework continues to change (e.g. Gelli law n. 24/2017).
- 1.9. This process has been accelerated by existing difficulties in the MedMal market:
- a lack of reliable data, which makes technical pricing more difficult;
 - difficulties in estimating costs, both in timing and amounts, because of:
 - high levels of litigation;
 - the long time required for a judgement in the Italian judicial system;

- the possibility of a long time lag between the event and the claim being reported.
- f) uncertainty in claim settlements that affects reserving process (i.e. material risk of adverse reserve development).

1.10. In order to gain a deeper understanding of the market, IVASS, the Italian supervisory Authority, has scheduled a yearly survey of MedMal business, which started in 2016. All undertakings operating in Italy have been required to provide data on their activity (e.g. amount of premiums collected, number of policyholders, main characteristics of the insurance covers, qualitative answers on trends in the medical malpractice sector, etc.)

1.11. The chart below shows the Loss Ratios analysis, based on the survey data as at 31.12.2017.

1.12. Loss ratios are here defined as the amount paid and reserved¹⁰ divided by gross written premiums (earned premiums are not available in the survey):

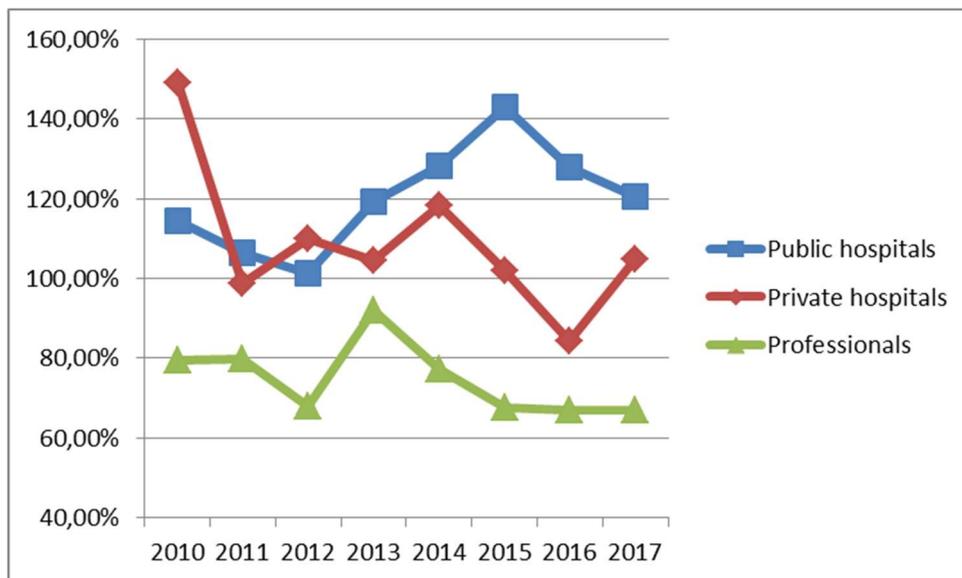


Figure 3: loss ratio per reporting year and type of risks

1.13. To better understand the systematic trend of the loss ratios¹¹ IVASS performed a market analysis, reproduced below, with a focus on the different development years.

1.14. Given that the policies are on a claims made basis, the tables below do not show the claims development per accident year (as usual) but per reporting year.¹²

¹⁰ Provisions in the Loss Ratios are based on local GAAP and not on Solvency II.

¹¹ In IVASS survey losses are collected gross of deductibles, excluding self-insurance. Deductible amounts vary according to contracts and might be very high (especially for hospitals); they can also be related to a period of time and not to individual claims.

¹² Policies on a claims-made basis usually do not generate high IBNR (if a claim is not reported, then it is not paid). For occurrence-based policies, triangles per accident year are usually used.

Market		Development year							
		2010	2011	2012	2013	2014	2015	2016	2017
Reporting year	2010	112,9%	119,5%	118,2%	114,2%	111,1%	110,0%	108,7%	111,1%
	2011	.	121,1%	123,3%	117,6%	108,4%	105,7%	102,7%	98,6%
	2012	.	.	119,2%	125,7%	115,5%	108,6%	107,8%	93,0%
	2013	.	.	.	133,6%	132,2%	123,1%	117,6%	108,3%
	2014	.	.	.	.	122,6%	127,0%	117,4%	108,9%
	2015	.	.	.	.	.	100,5%	111,6%	106,3%
	2016	.	.	.	.	.	.	90,8%	99,0%
	2017	.	.	.	.	.	.	.	98,1%

Table 2: loss ratio per reporting and development year, for all types of risks

- 1.15. Overall the market is unprofitable (without taking into account financial investment profits) if one looks at 2017 figures, which should push undertakings to improve their technical analysis and pricing processes and perform several sensitivities to assess the quality of actuarial evaluations.
- 1.16. For the best estimate for claims provision, it is important to take into consideration how medical malpractice claims will develop over time and:
- Include an estimate of the losses that will result from unreported claims that have occurred before the end of the reporting period: this part of the best estimate for claims provision (pure IBNR) is expected to be relatively small compared to other parts of the best estimate, given that policies are on a claims-made basis.
 - Include an IBNER adjustment (Incurred But Not Enough Reported): this part of the best estimate for claims provision is usually very material and it plays an extremely important part of the technical reserving assessment.
- 1.17. As explained above, information collected in the survey has been based on reporting years due to the long time lag between the insured event and the claim report. Furthermore, hospitals generally take time to report claims to undertakings in order to first assess possible internal responsibilities. The long-term nature of this business is also strongly influenced by the time required for a Court to assess liabilities. This long-term nature can be demonstrated analysing the claims reserve development split per risk – the 2017 figures are roughly one third of the 2010 figures:

Public hospitals		Development year							
€/mln		2010	2011	2012	2013	2014	2015	2016	2017
Reporting year	2010	521,0	491,1	414,8	334,1	264,6	227,1	183,3	170,2
	2011	.	529,2	494,3	384,4	306,8	261,8	220,4	188,3
	2012	.	.	464,9	456,3	358,3	281,1	234,8	140,9
	2013	.	.	.	430,5	371,9	282,1	228,9	169,5
	2014	.	.	.	.	354,5	369,7	290,7	234,6
	2015	.	.	.	.	.	328,8	356,2	293,6
	2016	.	.	.	.	.	.	314,2	334,3
	2017	.	.	.	.	.	.	.	319,7

Table 3: claims development in million euro per reporting year for public hospitals

Private hospitals		Development year							
€/mln		2010	2011	2012	2013	2014	2015	2016	2017
Reporting year	2010	94,0	99,0	89,2	72,1	57,6	47,5	42,1	36,9
	2011	.	118,4	113,6	103,4	86,4	80,0	67,4	44,4
	2012	.	.	121,5	112,8	100,6	88,4	76,2	50,5
	2013	.	.	.	104,4	109,7	99,7	80,7	59,4
	2014	.	.	.	.	99,6	91,4	89,0	68,0
	2015	.	.	.	.	.	78,6	95,1	71,3
	2016	.	.	.	.	.	.	83,9	71,3
	2017	.	.	.	.	.	.	.	98,9

Table 4: claims development in million euro per reporting year for private hospitals

Professionals		Development year							
€/mln		2010	2011	2012	2013	2014	2015	2016	2017
Reporting year	2010	135,6	114,0	102,1	94,9	77,0	69,3	57,4	50,0
	2011	.	159,5	134,0	130,5	102,4	92,5	83,1	66,9
	2012	.	.	168,2	142,1	116,7	107,7	100,1	70,5
	2013	.	.	.	214,8	182,1	159,7	149,4	116,9
	2014	.	.	.	.	209,0	175,1	138,3	118,6
	2015	.	.	.	.	.	173,7	141,1	138,9
	2016	.	.	.	.	.	.	134,6	130,8
	2017	.	.	.	.	.	.	.	140,8

Table 5: claims development in million euro per reporting year for professionals

- 1.18. At year end 2017 the amount of technical provisions for claims outstanding (2010-2017) is € 3.2 billion for all types of risks. Focusing on claims reported in 2010 only, there is still a claims reserve (local GAAP) equals to € 257.1 mln for the whole market participants after 7 years of claim development (34.2% of the initial estimated amount).

2. Main aspects introduced by the new Gelli law

- 2.1. On 1 April 2017, law n. 24/2017¹³ entered into force with the aim to provide a better structured regulation for the Medical Malpractice insurance market. The law introduces new measures to implement more modern and effective management models to re-balance the system covering healthcare-related professional liability, reducing costs and safeguarding citizens' health.
- 2.2. The key features of the Gelli law are reported below:
 - 1) obligation for all public and private entities where a medical activity is performed to have an insurance policy or "any similar measure" (i.e. self-insurance) that covers third party liability. Insurance coverage is also mandatory for professionals practicing in public or private entities;
 - 2) strengthening requirements for self-insurance (hospitals need to improve data collection and risk management);
 - 3) retroactivity limit of 10 years for claims reported for the first time within the contractual coverage;
 - 4) right of the damaged person to directly sue the undertaking covering the hospital or the professional practicing on a private basis;
 - 5) public guarantee fund for exceptional damage compensations (exceeding the maximum amount covered);
 - 6) a compulsory requirement for a preliminary out-of-court attempt to reach an agreement for claim settlement.

3. Technical reserve analysis

- 3.1. Unlike French Construction Defects insurance (Annex 1, section 3) there is no commonly used method of setting provisions for Italian MedMal.
- 3.2. Undertakings often use traditional claims handling (via internal or external claims handlers) and a variety of traditional actuarial methods that rely on the assumption that trends from the past can be used as a reliable guide to the future. This can pose particular challenges in the area of MedMal insurance and may increase the need for expert judgement. For example:
 - medical advances can change the nature of claims and how they develop over time; indeed it can even lead to changes in claimants longevity and thus claim severity;
 - court judgements and changes in the law may lead to changes in claim costs volatility over time, e.g. the recent Gelli law; and
 - medical inflation typically differs from general inflation.
- 3.3. Examples of good practices in the Italian MedMal market include:
 - Sub-dividing data into homogeneous risk groups (HRG) sufficiently granular to adequately reflect the nature of the risks, for example by risk types (professionals, public & private hospitals), by regions or groups of regions that display similar characteristics and by type of claim.
 - Separating very large or catastrophic claims from the smaller (attritional) claims. Alternatively, it is possible to "cap" claims at a suitable threshold and

¹³ <http://www.gazzettaufficiale.it/eli/id/2017/03/17/17G00041/sq>

analyse capped claims and claims in excess of the threshold separately. A specific analysis on large claims is particularly useful, for MedMal, when the claims are in respect of the cost of ongoing medical care (e.g. for children injured at birth). In these cases claims can be settled by means of annual payments rather than the traditional lump sum compensation, changing the development pattern materially.

- Applying several actuarial methods (e.g. Bornhuetter Ferguson Paid/Incurred, Chain Ladder Paid/Incurred, Frequency-Severity) and analyzing the results of each method in order to verify the underlying hypothesis.
- 3.4. It is important to note that both of these last approaches require larger volumes of high quality data over many years. This will inevitably limit some undertakings, which do not have access to sufficiently granular data.
 - 3.5. Where an undertaking does not have sufficient history of reliable data, it appears appropriate to test different reserving methods to compare the results. Where an undertaking uses a method based on *a priori* expected loss ratio to arrive at an ultimate loss estimate, particular attention should be paid to the adequacy of the development patterns and initial loss ratio hypothesis, which will materially affect the best estimate. These less sophisticated methods should only be used temporarily; meanwhile the undertaking should reinforce its data collection process in order to use conventional statistical methods.
 - 3.6. Reserving of long-tailed classes of insurance often rely heavily on incurred claims. Using paid claims data is a useful addition to the reserving process. But since it may take some time for the undertaking to settle the claims in full, methods based only on paid claims triangles could be inadequate if the history of payments is not long enough to estimate the ultimate loss with a sufficient confidence. In such a case, the experience of the claims management team can be useful.
 - 3.7. Furthermore, the undertaking should properly assess the absence of potential changes in claims patterns, which can affect development factors' selection.