BOX 4: HOW SIGNIFICANT IS CATASTROPHE RISK FOR MALTESE NON-LIFE INSURERS' SOLVENCY CAPITAL REQUIREMENT?[1]

Introduction

Catastrophe events are typically low-frequency but high-impact events that can give rise to severe and concentrated losses, posing significant risks to the financial resilience of insurance undertakings. The Solvency II framework therefore requires insurers to hold capital against catastrophe exposures as part of the SCR. This helps to ensure that sufficient financial resources are available to absorb unexpected losses and continue meeting policyholder obligations following a major catastrophic event.[2] Catastrophe risk has also attracted increasing attention at European level, reflecting concerns about the financial impact of natural catastrophe events, insurance protection gaps and the resilience of the insurance sector to severe losses.

This article examines the significance of catastrophe risk within the SCR of domestically relevant non-life insurers over the period 2016–2025.[3] To establish the regulatory context for the subsequent analysis, it first explains how catastrophe risk enters the SCR calculation. It then assesses the contribution of catastrophe risk to insurers' capital requirements and its evolution over time. The analysis focuses on changes in the composition of catastrophe risk across categories and perils, the geographical distribution of underlying exposures, including exposures located outside Malta, and the effects of risk mitigation and diversification. Particular attention is paid to observed gaps in the Malta-specific calibration of the Solvency II Standard Formula at present, and their implications for the interpretation of reported natural catastrophe capital requirements. Consequently, the findings should be interpreted in the context of the existing calibration and should not be taken as a comprehensive assessment of Malta's underlying catastrophe risk profile.

Catastrophe risk under the Solvency II Standard Formula

Under Solvency II, insurers are required to hold eligible own funds to cover the SCR, which is calibrated to a 99.5% confidence level over a one-year horizon. Under the standard formula, the SCR covers a range of risks, including non-life underwriting risk. This module comprises premium and reserve risk, lapse risk, and catastrophe risk, with the latter capturing potential losses arising from extreme or exceptional events.

The relative importance of catastrophe risk within the total SCR increased over the period under review, rising from around 10% in 2016 to more than 13% in 2025. However, the contribution of catastrophe risk to total SCR varied considerably across undertakings, ranging from 4% to 19% in 2025, reflecting differences in underwriting profiles and risk exposures.

Unlike claims arising from more typical loss experience, catastrophe risks are calibrated using low-frequency, high-severity scenarios that may generate exceptionally large and concentrated losses. They may arise from a natural catastrophe affecting numerous policyholders simultaneously or from a major man-made event, such as a large-scale marine or aviation accident, a significant fire, or an event generating multiple motor or liability claims.

Catastrophe risk comprises three broad categories of exposures: natural catastrophe risk, man-made catastrophe risk, and other non-life catastrophe risk. Natural and man-made catastrophe risks are further subdivided into individual perils. Natural catastrophe risk encompasses windstorm,

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[1] Written by Ms Luana Camilleri, Senior Expert within the Financial Stability Surveillance and Risk Assessment Department. The author would like to thank Mr Andrew Spiteri, Ms Wendy Zammit, Mr Alan Cassar, Deputy Governors Oliver Bonello and Rita Schembri, and Governor Alexander Demarco for their valuable suggestions.

[2] Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast) (Text with EEA relevance).

[3] Argus Insurance (Europe) Limited is included in the sample from 2024 onwards.

earthquake, flood, hail and subsidence, while man-made catastrophe risk comprises motor vehicle liability, marine, aviation, fire, general liability, and credit and suretyship risks.[4,5]

Other non-life catastrophe risk is reported as a separate category and primarily relates to certain marine, transport, casualty, and miscellaneous financial loss exposures not captured within the dedicated natural and man-made catastrophe risk sub-modules.

For the natural and man-made catastrophe perils considered here, the calculation starts with the undertaking's underlying exposures. The relevant parameters or stress scenarios prescribed under the Solvency II standard formula are then applied to determine the capital requirement before risk mitigation. For natural catastrophe risk, the calculation relies on country-specific factors and prescribed scenarios intended to reflect the severity of natural hazards across jurisdictions. These calibrations are periodically reviewed by EIOPA to reflect available evidence and modelling developments.

The coverage of Malta-specific factors in the natural catastrophe calibration is relevant to interpreting the results. Earthquake is currently the only natural catastrophe peril with a Malta-specific country factor in that calibration. Although flood risk for Malta was considered during EIOPA's 2023–2024 reassessment of natural catastrophe perils and country factors, no Malta-specific flood factor was proposed owing to the absence of a suitable model, with Malta identified for reconsideration in a future review.[6,7] Hail, windstorm and subsidence were not assessed for Malta and therefore remain outside the Malta-specific calibration of the standard formula. The absence of country-specific factors does not imply that these hazards are absent or immaterial, but rather that the current standard formula does not quantify the associated capital requirements for exposures located in Malta.

Once the pre-mitigation capital requirements are estimated, recognised risk-mitigation techniques, principally reinsurance, are applied to determine the corresponding post-mitigation capital requirements. These are then aggregated using the prescribed Solvency II methodology, which recognises diversification effects arising from the fact that different catastrophe risks are unlikely to materialise simultaneously at their stressed levels.

Composition of catastrophe risk by category and peril

In 2025, the aggregate pre-mitigation peril-level capital requirements of domestically relevant undertakings amounted to approximately €1.2 billion for man-made catastrophe risk and €464 million for natural catastrophe risk. Following reinsurance, the corresponding requirements declined to around €18.9 million and €14 million, respectively. An additional €2.2 million relates to other non-life catastrophe risk. Post-mitigation capital requirements were therefore equivalent to approximately 1.5% and 3.0% of the corresponding pre-mitigation requirements for man-made and natural catastrophe risk, respectively.

The impact of risk mitigation varied across catastrophe perils. Fire and earthquake recorded the largest proportionate reductions, consistent with the extensive use of reinsurance arrangements for

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4 Subsidence refers to damage caused by the sinking or settlement of the ground beneath a property. Liability catastrophe risk captures the possibility that a single event could give rise to a large number of third-party compensation claims, resulting in a significant accumulation of losses for insurers.

5 Wildfire is not currently included as a separate natural catastrophe peril under the Solvency II standard formula. While EIOPA is considering its potential inclusion, fire damage is already captured under the fire risk sub-module of the man-made catastrophe risk module, giving rise to potential double-counting concerns.

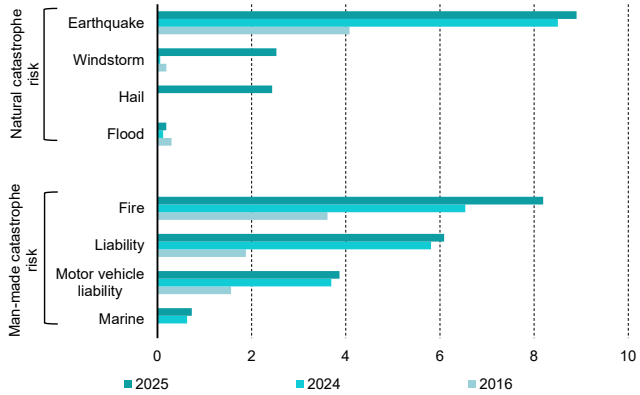
6 European Insurance and Occupational Pensions Authority (EIOPA), (2025, January 30), *Opinion on the 2023/2024 Reassessment of the Nat Cat Standard Formula*.

7 Recent experience illustrates the potential relevance of flood-related losses in Malta. Claims associated with Storm Harry in 2026 amounted to around €12 million, with flooding and other water damage accounting for approximately two-thirds of the total claims cost. While a single event is insufficient to support a regulatory calibration, it highlights the value of systematically collecting granular claims and exposure data to inform future Malta-specific flood-risk assessment and modelling.

these risks. Among the main perils, liability risk remained comparatively less affected by risk mitigation.

After risk mitigation but before peril-level diversification, man-made catastrophe risk remained the largest component throughout the period under review, driven by fire and liability risk (see Chart 4a). While the capital requirement for liability risk rose only marginally between 2024 and 2025, the increase in fire risk reinforced the contribution of man-made catastrophe risk.

Chart 4a
AGGREGATE CATASTROPHE RISK BY PERIL (2016, 2024 and 2025)
(EUR millions)



Source: Central Bank of Malta.
Note: Figures represent catastrophe capital requirements after recognised risk-mitigation arrangements and before the recognition of diversification benefits.

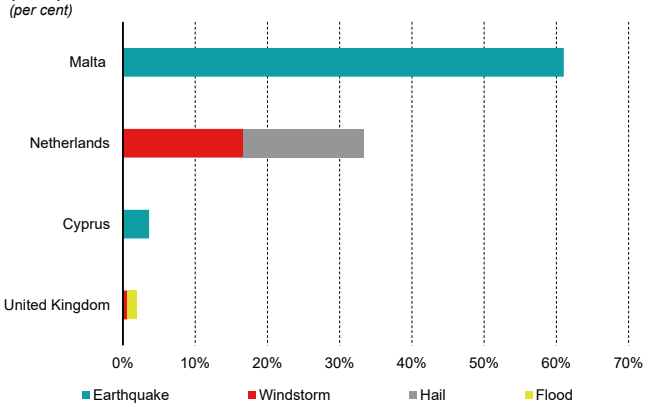
The capital requirement for natural catastrophe risk increased markedly in 2025, driven primarily by higher capital requirements for windstorm and hail. However, these increases were associated with a limited set of foreign exposures and did not reflect a broad-based increase across the insurers analysed. Despite these developments, earthquake remained the largest natural catastrophe peril by capital requirement and was broadly stable relative to the previous year. Its continued prominence is consistent with the standard formula calibration applicable to the reporting period, under which earthquake is the only natural catastrophe peril subject to a Malta-specific country factor. This should not be interpreted as evidence of dedicated earthquake products but rather reflects the insurers' exposure to the earthquake scenario prescribed under the standard formula.

Geographical distribution of natural catastrophe risk

Although the analysis covers domestically relevant insurers, their underlying exposures are not confined to Malta. Since natural catastrophe scenarios are calibrated according to the location of the insured risk, the geographical distribution of these exposures provides important context for interpreting the reported capital requirements (see Chart 4b).

At aggregate level, exposures located in Malta accounted for just under 60% of post-mitigation natural catastrophe capital

Chart 4b
GEOGRAPHICAL DISTRIBUTION OF NATURAL CATASTROPHE RISK (2025)
(per cent)



Source: Central Bank of Malta.
Note: Figures represent catastrophe capital requirements after recognised risk-mitigation arrangements and before the recognition of diversification benefits.

requirements in 2025, making Malta the largest geographical contributor. The remaining requirements arose from risks located in foreign jurisdictions, with the Netherlands representing the largest foreign component. Malta's predominance reflects the orientation of insurers' portfolios towards domestic risks, while the composition of its natural catastrophe capital requirement is also influenced by earthquake being the only peril with a Malta-specific country factor in the calibration examined. These shares relate to calculated capital requirements, rather than shares of total insured exposure. A comparable geographical breakdown is not available for man-made catastrophe risk.

At peril level, capital requirements for windstorm risk were primarily associated with exposures in the Netherlands, with a smaller share relating to the United Kingdom, while those for hail risk related to exposures in the Netherlands. Capital requirements for earthquake risk were primarily linked to exposures in Malta and, to a lesser extent, Cyprus, while those for flood risk were driven by exposures in the United Kingdom.

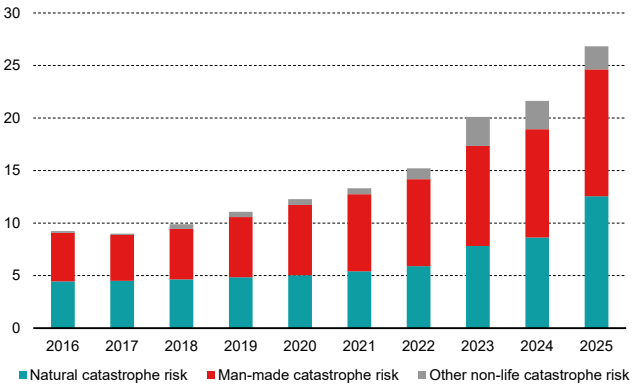
Diversification effects

Diversification reduces catastrophe-related capital requirements. In 2025, the sum of post-mitigation peril-level capital requirements for man-made, natural, and other non-life catastrophe risk, before diversification, amounted to approximately €35.1 million. After recognising diversification within and across the catastrophe risk sub-modules, the overall capital requirement for non-life catastrophe risk declined to €20.5 million, representing a reduction of around 41.6%. This percentage reduction remained broadly stable throughout the period under review.

This reduction can be assessed in two stages. First, diversification among the individual perils within the natural and man-made catastrophe risk sub-modules reduces the combined capital requirement by approximately €8.3 million, to €26.8 million. The diversification benefit is greater for man-made catastrophe risk than for natural catastrophe risk. Consequently, following peril-level diversification, natural catastrophe risk becomes marginally larger, with a capital requirement of approximately €12.6 million, compared with €12.1 million for man-made catastrophe risk (see Chart 4c). Other non-life catastrophe risk remains comparatively small, at €2.2 million, and therefore does not materially affect the overall composition of catastrophe risk.

Second, diversification across natural, man-made and other non-life catastrophe risks at undertaking level achieves a further reduction of approximately €6.3 million, bringing the overall capital requirement for the non-life catastrophe risk sub-module to €20.5 million.

Chart 4c
COMPOSITION OF AGGREGATE CATASTROPHE RISK BY TYPE
(EUR millions)



Source: Central Bank of Malta.
Note: Figures reflect capital requirements after the application of risk mitigation techniques and diversification within each catastrophe risk category, but before diversification across catastrophe risk categories.

Conclusion

The analysis shows that catastrophe risk is becoming an increasingly important component of non-life insurers' capital requirements within the context of the current Solvency II standard-formula calibration. For exposures located in Malta, earthquake is currently the only natural catastrophe peril subject to a country-specific factor. Consequently, the prominence of earthquake within the results reflects the risks explicitly captured by the framework and should not be interpreted as a comprehensive assessment of Malta's natural catastrophe risk profile.

The findings therefore point to a gap between the risks captured by regulatory capital requirements and the broader range of natural catastrophe risks that may be relevant to the Maltese insurance market. Addressing the significance of this gap would benefit from further development of the underlying exposure and claims data, together with suitable hazard assessments and catastrophe models. Continued engagement between national supervisory authorities and EIOPA would support future assessments of whether additional Malta-specific calibrations are warranted and whether the prudential framework adequately reflects catastrophe risks relevant to the Maltese market. It should be noted, however, that the absence of a dedicated country factor does not, by itself, establish that insurers' overall capital is inadequate.

The analysis also highlights the substantial but distinct roles of risk-transfer arrangements and diversification in determining the final catastrophe capital requirement reflected in insurers' solvency positions. Reinsurance reduces insurers' direct exposure to catastrophe losses by transferring part of the risk to reinsurers, while diversification lowers aggregate capital requirements by recognising that different catastrophe risks are unlikely to materialise simultaneously at their stressed levels. Together, these effects materially reduce the capital impact of catastrophe exposures. However, reliance on reinsurance also creates counterparty exposures that require appropriate risk management.

From a prudential and financial stability perspective, the assessment of catastrophe risk should extend beyond the resulting capital requirement and consider the broader range of natural hazards potentially relevant to Malta, the nature and geographical concentration of underlying exposures, and the distribution of these exposures across insurers. Continued monitoring of these dimensions remains important for assessing the sector's resilience to severe catastrophe events and identifying emerging changes in the nature, concentration, and transmission of catastrophe risk over time.