Newsflash

Stress and Scenario Testing

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As we enter 2022, many firms will be turning their attention to completing their Own Risk & Solvency Assessment ('ORSA') and a key input into this is Stress and Scenario Testing ('SST'). Later in 2022, many of the larger UK insurers will participate in the Life Insurance Stress Tests ('LIST').

Background

This note considers some of the lessons learned from recent SST exercises as well as looking forward to potential challenges faced by firms completing the LIST for 2022 as specified by the Prudential Regulatory Authority ('PRA').

The demand for the results of SST often comes from two key sources. Firstly, SST is generally a topic of interest for Board members given their obligation to be comfortable with the prudent management of the firm in accordance with its risk appetite. Secondly, regulators frequently request SST results to understand how individual firms would react to certain scenarios. In this way the regulators seek to understand key risks for firms as well as identifying any potentially systemic risks for the wider financial services industry.

Internal benefits

In carrying out SST, insurers estimate the impact of stresses to particular model inputs or assumptions, or of specific future scenarios on their key financial metrics such as capital, solvency and liquidity etc. This helps them to identify and understand the most material risks that they face and to understand how their firm would react in the event of certain risk events occurring. This, in turn, helps them to mitigate and proactively manage these risks.

We see firms making use of stress testing to set and calibrate their risk appetite triggers considering which management actions could be used to mitigate these stresses. Then scenario testing develops this further by combining a suite of stresses and considering which of those actions could be implemented in the combined stress. Senior management may then use the results of that exercise and consider other practical constraints to determine which actions would be taken in various scenarios in practice. A key challenge is understanding which management actions could be implemented under various circumstances and the order and timing of their implementation. This is because the quantum of benefit that can be achieved from an assumed management action may vary by scenario and by order and timing of implementation. Hence, detailed actuarial modelling may be required to understand the potential effectiveness of the designated management actions. Even so, such modelling often requires significant judgement and so the results may require careful interpretation.

Another challenge relates to the interactions between risks of various types and the factors influencing them, as these may change under more extreme stressed scenarios. Understanding these interactions helps management to better understand the expected impacts of extreme events and the effectiveness of management's recovery plans. However, there may be limited data with which to calibrate these interactions in extreme scenarios and again significant judgement may be required.

LIST 2022

In recent years we have seen regulators increasingly using SST as a tool to understand the risks faced by individual firms and to provide a view of the sort of scenarios that may cause issues across the wider insurance industry. For example, in 2019 the largest UK life and general insurers were contacted by the PRA in relation to the Insurance Stress Tests and a similar exercise is being undertaken in 2022.

As was the case in 2019, when the LIST exercise focussed on large annuity providers, the LIST 2022 will again be targeted at the largest UK life insurers.

In terms of timings, the PRA has been in dialogue with participants since September 2021 to get firms' input on the structure of the scenarios to be included and the parameterisation of these. On 20 January 2022 the PRA published the intended scenarios, basis of preparation and reporting templates and sought feedback from firms. The deadline for providing feedback is 17 March 2022 and it is expected that the LIST will be formally launched in May, with firms asked to submit responses in September. A round table discussion is planned for July to assess progress and also allow firms to discuss any issues that they have faced.

The PRA will not publish the full results but will provide feedback on the exercise to the industry as a whole, and this is expected to be provided in December.

In terms of content, it is expected that there will be similar areas of focus to the 2019 exercise. Such areas might include downwards shifts in interest rates, widening spreads, significant reductions in asset values and increases in mortality improvements as well as sensitivities to the level of Fundamental Spread in the Matching Adjustment. We wouldn't be surprised if there were also scenarios influenced by recent hot topics such as pandemic risk, climate change or inflation risk.

In our experience, we know that being asked to run a large number of additional scenarios of both a univariate and multivariate nature can take considerable time and effort, especially where these are non-standard and so there will inevitably be a time lag to produce results.

One way that firms might accelerate the production of SST results is using proxy modelling approaches rather than full model runs. Proxy models can significantly reduce the time and effort required to produce results. However, there is usually a trade-off. For example, while proxy models may quickly demonstrate the nature of the financial dynamics under certain stresses, the accuracy of results may be lower than more industrialised models. Also, the appropriateness of using proxy models may depend on the specific scenarios in question.

Another way to produce the required results in time is to make approximations. During the 2019 LIST exercise, many firms used approximations for the recalculation of the Matching Adjustment (MA) under stress, the recalculation of the SCR under stress and the Risk Margin and TMTP under stress. These approximations and the different interpretations applied by participating firms led to some structural inconsistencies between firms in the way certain scenarios were modelled. To improve consistency for the LIST 2022, participants have asked to provide feedback and input into the structuring of the specific scenarios.

It is good that the PRA appears to have responded positively to feedback from the previous exercise and we'd hope that the steps taken make the results more useful for both the regulator and the industry. We'd hope that in designing the exercise, the PRA is mindful of any potential changes to Solvency II in the UK which may be introduced as part of the ongoing review to ensure that the results of the exercise do not quickly become obsolete.

Wider regulatory focus

Another recent example of regulators making use of SST is EIOPA's 2021 Insurance Stress Test, which focussed on the impacts of a "prolonged COVID-19 scenario in a lower-for-longer interest rate environment"[1]. The results of the stress test showed that, in general, firms were well-prepared to deal with the scenario in question, although around 15% of participants were dependent on the ability to employ management actions to keep their solvency ratio above 100%. Another interesting finding was that many firms were heavily reliant on the transitional measures which were intended to smooth the effects of implementing Solvency II and will be phased out over the next c.10 years.

Due to this increasing regulatory focus on SST, over time firms are having to run an ever-increasing number of different stresses/scenarios. While the results of these additional runs may be of interest to regulators, some firms may find themselves having to invest significant resources into developing modelling capabilities and running the many scenarios to produce numbers that are sometimes of limited use to them as a business. In our experience, we know that firms would generally prefer to focus on their own key risks and be comfortable with their assumed management actions in possible future scenarios rather than invest time and effort modelling complicated scenarios which may not be easy to justify from a commercial perspective. For example, a regulatory focus on modelling the Matching Adjustment under stress may be appropriate for firms with material annuity portfolios but less so for other firms for whom the Matching Adjustment portfolio is less significant relative to other business held, and hence not really material enough to justify the additional effort.

Recognising the importance that SST can play in understanding the risks faced by insurers, it is understandable that the regulators expect firms to continue to develop their SST capabilities. Some firms are working to get to a position where they are able to run a bank of stresses on a monthly basis. However, doing this is not straightforward. The challenges articulated above remain and as always, there is a trade-off between the sophistication of the modelling and the time and cost to run.

Limitations

It is important to remember that models are simplified versions of reality and so we need to be careful when interpreting the results. Insurers should be well used to assessing the results of their models in terms of reasonableness, but extra care should be taken when interpreting the results of 'non-standard' scenarios or particularly extreme stresses. For instance

- Firstly, one should consider whether the capital models were designed with such stresses in mind.
- Secondly, data tends to become increasingly scarce as the scenarios become more extreme and so even if models were designed to simulate such extreme stresses, there may be very little observable data on which to calibrate the stresses and consequently significant judgement may be required and a range of plausible outcomes.

Insurers must also remember that, despite the increasing number of stresses and scenarios being modelled, they will never be able to cover all future eventualities. For example, we'd be surprised if at year-end 2019 many insurers' pandemic scenarios included the extreme market volatility that we saw over the first half of 2020 and/or the effects of lockdown, government intervention and remote working. In reality, we know that instead virtually all firms' pandemic scenarios were based on the 1918 outbreak of Spanish Flu. In practice, over the past two years there has been a significant volume of data produced about the Covid pandemic and hopefully firms will be able to use some of this to enhance aspects of their modelling in future e.g. interaction of longevity and credit risks.

[1] https://www.eiopa.europa.eu/media/news/eiopa-insurance-stress-test-shows-industry-resilience-also-reliance-transitional-measures

Summary

In summary, we consider that

- SST remains an important tool in firms' risk management tool kit
- Regulators will continue to request the results of SST exercises to understand the vulnerabilities of individual firms to certain events and to understand the existence of any systemic risks present in their industry
- a balance needs to be struck between results accuracy and understanding the financial dynamics quickly; and
- the potential benefits from increased sophistication and processing power should provide firms with a vested interest in enhancing their capabilities and should also help them to meet regulatory expectations.

How we can help

We continue to speak to a wide range of insurers across the UK and abroad about their priorities and the hot topics on their agendas. These include risk and capital management, longevity management, investment and ALM, product development and digital tools. We frequently discuss SST and Solvency II developments and how these could impact their businesses.

If you would like to discuss the content of this newsflash further, please get in touch with one of the authors.