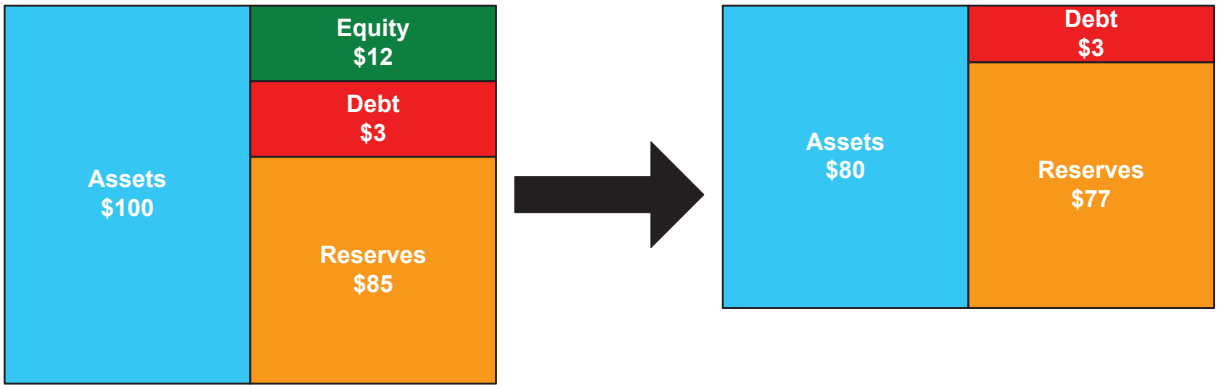
Economic Capital, Countercyclicality and a "Plausible" ORSA

by Evren Cubukgil and Wilson Ling

The Own Risk and Solvency Assessment (ORSA) is a process to dynamically manage the capitalization of an insurer, and thus the protection provided to its stakeholders from insolvency and default. In order to successfully implement this process, an insurer needs a risk appetite that sets separate levels of acceptable protection for its policyholders and debt holders; by so doing, determining the amount of capital to hold beyond its reserves and what proportion of that capital to fund with debt. Strictly relying on regulatory capital as a measure to calibrate risk appetite is insufficient for this process; an internal or economic capital model is required to assess the full distribution of net asset values. Levels of available and required capital do not remain constant as asset and liability values fluctuate throughout the business cycle. It is important that an insurer manages its solvency level, defined by the ratio of available capital to required capital, with countercyclicality: allowing the solvency level to fluctuate with the business cycle. This is facilitated through scenario stress-testing, which is part of the ORSA process. Evaluating forward-looking stress scenarios should be aimed at modeling plausible future deterioration in economic conditions through the business cycle and managing a capital or solvency buffer above a minimum level—defined as part of a well-articulated risk appetite.

Under ORSA, as envisioned under Solvency II, an insurer's required capital can be measured in terms of regulatory capital[1] or by an internal model (economic capital), and represents a change in net asset value corresponding to a specified confidence level; i.e., a 1-in-200-year event or 99.5th percentile of the one-year distribution of net asset value. Suppose an insurer has no debt and holds assets equal to reserves (liabilities) in addition to available capital corresponding to its required capital at the 99.5th confidence level. This insurer could conceptually experience a 1-in-200 year shock to its net asset value and have enough assets left over to pay off its policyholder liabilities—marginally avoiding insolvency. Available capital represents the value of the insurer's equity and acts as a buffer over reserves which can be drawn down in times of stress. The capital structure of an insurer is not always funded entirely by shareholder equity and can include debt. In such cases, liabilities of policyholders are protected by the value of equity prior to debt default, and by the value of bondholder claims after default.

In the following example, an insurer holds $100 of assets, against $85 of liabilities and $3 of debt. A 1-in-200-year scenario decreases assets by $20 and decreases liabilities by $8; thus the required capital of the insurer is $12, against which it holds $100 (assets) - $3 (debt) - $85 (reserves) = $12 of available capital in the form of common equity.



[1] For example, the Solvency Capital Requirement (SCR) under Solvency II.

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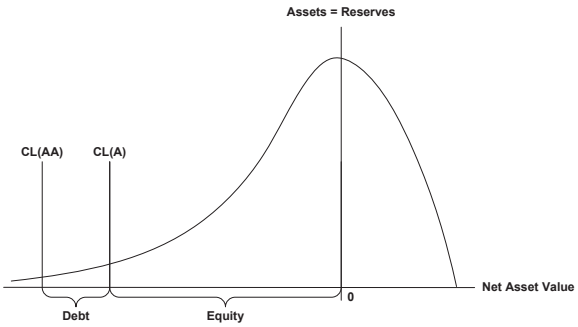
As part of the ORSA process, an insurer must manage the risk to which it exposes both its policyholders and debt holders. Relying solely on regulatory capital will often be insufficient for managing exposure of either stakeholder individually—let alone both simultaneously. Regulatory capital requirements, such as the SCR under Solvency II, are calibrated to provide an approximation to the 99.5th percentile of an insurer's net asset value distribution over a one-year horizon. Unless an insurer is satisfied to manage against insolvency at the 99.5th confidence level—equivalent to a BBB financial strength rating—it must hold available capital beyond the SCR requirement. The question to answer is, "How much additional capital to hold?" With only the level of required capital provided by the SCR, an insurer only has one percentile in the distribution of its net asset value: 99.5th. In order to prevent default at the 99.95th percentile, it may have to hold 120 percent, 130 percent or 150 percent of the SCR. An insurer will have to model multiple—if not all—percentiles of its net asset value distribution to be able to determine the amount of capital required to protect against a default at specific confidence levels. An internally developed economic capital framework would be required to model the entire distribution of net asset values over a one-year period.

In order to simultaneously manage both its probability of default and the capital buffer above reserves, an insurer should model the entire distribution of its net asset value to know the separate probabilities of having sufficient assets to pay its debt holders and to cover liabilities to its policyholders. The following figure illustrates the distribution of net asset value of an insurer over a one-year period. The figure illustrates the amount of debt and equity the insurer would have to hold to ensure that (i) at a confidence level associated with an A debt rating, the insurer will have sufficient assets to not default and pay its debt holders; and (ii) at a confidence level associated with a AA rating, it will have sufficient assets to pay its liability holders but not its debt holders.[2]



With an economic capital model, an insurer may determine the probability that the value of its net assets falls beyond equity coverage (default), and the probability its net asset value falls beyond debt coverage and it cannot pay its policyholder liabilities (insolvency). However, the distribution of net assets fluctuates throughout the business cycle and due to non-economic contingencies. If an insurer holds a set pool of assets as available capital, the buffer or protection against default and insolvency provided to stakeholders will fluctuate.[3] Attempting to hold constant the level of protection[4] provided to stakeholders throughout the business cycle creates pro-cyclicality in available capital, which would be required to increase with required capital in the trough of the business cycle and decrease in the peak. Pro-cyclicality

[2] This is the distinction between an issue rating—representing the probability of default for a single instrument issued by a financial institution and an issuer, or financial strength rating—the overall probability that a financial institution will default and not be able to pay all of its liabilities.

[3] It is important to note that the value of available capital will also fluctuate throughout the business cycle, depending on its asset constitution.

[4] Hold constant the probabilities of default and insolvency.

in capital requirements is not desirable, as it requires an insurer to constantly de-risk or issue equity in a down market—when raising capital is at a premium—while buying back assets and equity during economic booms, when assets are at a premium. Ideally an insurer should aim to achieve countercyclicality in its capital buffer and solvency: building it up during good times and allowing it to be run down in times of stress. This should be an overarching principle in the setting of risk appetite and of scenario stress-testing under the ORSA process.

As part of the ORSA process, an insurer should begin by defining a risk appetite that sets a minimum acceptable level of protection to debt holders from default and to policyholders from insolvency, under times of stress or poor economic conditions. Using the figure above as an example, this could be an AA rating for policies issued and an A rating for debt issued. Holding an additional capital buffer in the form of common equity will increase the financial rating provided to debt holders and policyholders.[5] The ORSA process should seek to manage the capital or solvency buffer above this minimum tolerance. The buffer should be built up under positive economic conditions and allowed to run down toward the minimum tolerance under times of stress. A key purpose of stress- and scenario-testing under the ORSA process should be to manage fluctuations in the solvency buffer through the economic cycle, and ensure that stakeholders are protected by the minimum acceptable level of solvency under stress. Modeling the entire distribution of net asset value with an economic capital framework will allow the insurer to choose the appropriate confidence level for its capital buffer and monitor changes to that confidence level and the associated probabilities of default faced by debt holders and policyholders through the business cycle.

Within the ORSA process, scenario stress-testing is a vital tool in managing an insurer's capital or solvency buffer as it fluctuates throughout the business cycle. To this end, the scenario stress-testing framework needs to consider plausible stress scenarios, as opposed to focusing on extreme and remote "end of the world" type scenarios.[6] An insurer needs to have a view of plausible stress events that may initiate the next contraction of the business cycle, and the resultant impact on its capital buffer. Under positive economic conditions, the results of scenario stress-testing can be used to evaluate the sufficiency of capital buffers—above the minimum. Similarly, at the bottom of the business cycle it is important to evaluate the impact of further deterioration in economic conditions on capital buffers; this will allow an insurer to determine how far it is from its minimum acceptable level of protection provided to policyholders and debt holders. Assessing the impact of a severe scenario associated with less than a 1-in-200 year probability is not informative for managing capital or solvency buffers through contractions and expansions of an eight- to 10-year business cycle. It would simply not be feasible or competitive for an insurer to hold a solvency buffer to maintain an A or even a BBB rating against default following a 1-in-200-year stress scenario.[7]

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[5] However, it should be noted that an economic capital model would be required to determine the decrease in probability of default and insolvency afforded by a given buffer.

[6] That is not to say that such reverse stress scenarios do not belong in the ORSA process—it is valuable for an insurer to be aware of magnitudes of shocks required to render it insolvent, and assess the likelihood of such shocks.

[7] Such a buffer may imply holding capital to the 99.9975th percentile of the distribution of net asset value, or a 0.25 basis point probability of default, which is beyond an AAA rating.

There are three key ingredients to successfully implement an ORSA process: an economic capital framework that can separately model the probability of default and insolvency faced by debt holders and policyholders; a robust risk appetite that sets out the minimum acceptable level of protection provided to debt holders and policyholders; and a scenario stress-testing framework that aims to predict fluctuations in the business cycle and manage the capital buffer above the minimum tolerance levels. These three components of the ORSA process should be combined to manage the solvency of an insurer with the aim of maintaining a countercyclical capital buffer.

Reference

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