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A portrait of Gerhard Stahl, a middle-aged man with glasses, wearing a dark suit, light blue shirt, and striped tie. He is standing in a grand hall with many white classical columns receding into the distance.

A Herculean task for regulators

Talanx's Gerhard Stahl on the 2020 review of Solvency II

The logo for the InsuranceERM Awards 2018/19. It features a large, stylized gold star on the left. To the right of the star, the text "InsuranceERM" is in a small, sans-serif font. Below it, "Awards" is written in a large, elegant serif font, and "2018/19" is in a smaller, gold-colored serif font.

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All the winners from this year's
InsuranceERM Awards

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Paul Fulcher and Luca Tres describe the pros and cons of 10 techniques and solutions available to European life insurers to help manage capital under Solvency II



Paul Fulcher



Luca Tres

“Planning, gentlemen, is ‘What are you going to do next year that’s different from what you did this year?’ he told them. ‘All I want is five items.’”

The initial quote is taken from the book *Barbarians at the gate: The fall of RJR Nabisco*, the iconic book best representing the change that happened to the corporate world during the turbulent years of the late 1980s.

The life insurance industry may not be facing any imminent ‘barbarians’ but we can draw a parallel between what happened to the corporate world then and the insurance industry around the introduction of Solvency II: a change in mindset and disruptive new entrants in the space.

These new entrants include private equity houses, hedge funds and insurtech

firms, who are ultimately buying and launching insurance companies for two reasons: the leverage this gives to their business and, more importantly, the sector's perceived conservatism, which they can exploit to extract value for their shareholders. Value extraction that happens not only by investing in complex assets with higher returns, but also through the optimisation of capital resources.

Hence, going back to the initial question... *'What are you going to do next year that's different from what you did this year?'*... One of the top five items, in our view, should be capital management and optimisation.

Insurance capital management opportunities under Solvency II have often been discussed, but execution has generally lagged. With increased pressure on the industry, now is an ideal time for insurers to incorporate innovative Solvency II capital optimisation techniques into their planning.

AN OVERVIEW OF CAPITAL OPTIMISATION TECHNIQUES

In this article we examine a range of available and developing techniques using innovative capital market transactions. We focus here on actuarial and technical risks, but the asset side of the balance sheet also gives insurers plenty of options to exploit capital benefits.

Zooming out for a second, we notice how more and more insurers are looking at the Tier 2 market to support their capital ratios. Although the hybrid market offers a potentially attractive area for the sourcing of capital (especially for very large and well-known insurance groups), with a standardised and well-known structure with which regulators are familiar, a Tier 2 issuance may not be the best strategy.

Transactions designed to enhance an insurer's capital position under Solvency II can be designed to:

- reduce required capital i.e. the solvency capital requirement ("SCR"); and/or
- increase available capital resources, i.e. basic own funds.

The most efficient will depend on a firm's circumstances.

Given that insurers target a minimum

solvency ratio (basic own funds / SCR) in excess of 100%, there is a leverage efficiency from transactions that reduce SCR. Where the denominator, the SCR, is reduced by 1 (say, by entering into a risk hedge), under a target solvency ratio of 150%, this would have the same impact on the solvency ratio as issuing 1.5 of hybrid capital (or, more generally, of a 1.5 capital increase).

Therefore, all other things being equal, supporting the solvency ratio by entering into a de-risking (reinsurance or derivative) transaction should normally give a lower break-even cost of capital than a Tier 2 issuance.

A de-risking transaction may not have a 1-for-1 impact on the overall SCR (because of diversification, as well as basis risk), but the insurer can also benefit from a reduction of risk margin, with the benefits this brings in terms of capital strengthening and reduced volatility.

And for capital markets transactions that increase own funds, even if the price differential is not massive (it should not be), the Solvency II cap on hybrid debt issuance and the regulators' focus on capital quality means that such transactions can represent an important alternative to Tier 2 issuance.

We set out below 10 examples of areas for capital optimisation. This is definitely not meant to be an exhaustive list and it includes areas already very well known to our readers as well as some that may be less familiar. This simply aims to summarise the top 10 areas that have attracted the professional interest of the authors.

1. Embedded value-in-force ("EV" or "VIF") securitisations

Under Solvency I the most common capital relief trade was to advance, via loans or reinsurance, an amount to an insurer contingent on the emergence of future profits from an in-force book.

Under Solvency II, the best estimate liability component of technical provisions is indeed intended to be a best estimate,

and so contains less economic prudence than was typically the case for Solvency I reserves. Essentially, under Solvency II, subject to the risk margin and contract boundaries (as we will see later), the future profits that were expected to emerge under Solvency I already contribute to own funds. As such, the benefit received by the average insurance company in a Solvency I world has substantially disappeared leading to a reduction in number of these transactions.

All this said, however, people sang the requiem for VIF securitisation techniques far too soon. There is still a plethora of reasons why these have added value in the Solvency II space:

(a) New business strain and liquidity

When selling new policies, insurers typically incur upfront costs, often linked to sales channel remuneration and general marketing. Because of the current accounting treatment and the financing required, insurance companies often seek non-recourse VIF type financing to effectively support their growth strategy. If properly structured this is not only a financing play, but also offers partial de-risking because the repayment can be linked to profit emerging over time (see c. below).

(b) Acquisition finance

Similarly, when acquiring an insurer, a loan against future profits from the in-force book can provide liquidity and leverage to the buyer. If the loan is made to a non-regulated holding company outside the EU, and the proceeds injected as equity or hybrid debt, it can also improve the operating company's solvency ratio. It is also worth noting that if this is structured as senior debt financing at holding company level, lenders often include a covenant linked to the operating company's embedded value.

(c) SCR relief and de-risking

Although people often focus on the funding element of the transaction, VIF securitisation structures can also bring a significant element of de-risking and associated SCR relief. If appropriately structured, the financing simply follows

the profit emergence of the insurance book. Then if the realised mortality or lapses are particularly adverse compared to expectations, such as in the SCR scenario, the loan repayment can be impaired with the lender having no recourse to the insurer.

2. Contract boundaries

As mentioned above, under Solvency II, insurance companies can count VIF as regulatory capital up to the “contract boundary”.

The definition of the “contract boundary” means future premiums, and the profits associated with them, can fall outside of the technical provisions on the Solvency II balance sheet – essentially for certain contracts, Solvency II assumes an immediate 100% paid-up rate.

This can be punitive because, if for example we take a simple recurrent regular premium unit-linked contract, having a very short-dated contract boundary, essentially an insurer is not able to recognise the profit from future premiums as capital, profits that would otherwise be recognised on an economic basis.

In the first instance, many insurers have looked to rectify the contract boundaries issues by making changes to contract terms, in order to bring future premiums within the boundary.

However, this approach has attracted some regulatory attention¹ as not necessarily involving real risk reduction. In the frequent cases where changes to contract terms are not possible, a VIF securitisation advanced against the “post contract boundaries” future profits could be appropriate, resulting in the insurer strengthening its Solvency II capital position.

The traditional approach to VIF securitisation pre-Solvency II was a simple contingent loan repayable from future margins. But under Solvency II, alternative structures involving reinsurance have been developed and are often more efficient.

3. Risk margin

Another area of prudence in Solvency II technical provisions relates to the risk margin. This represents an additional safety buffer in technical provisions for risks that are deemed as non-hedgeable, which under the regulations includes all non-financial risks, and should approximate the cost of capital of an external buyer stepping in to bear the insurance liability.

Longevity risk transfer is not just driven by risk margin considerations: it is a hot topic globally and one of the key themes in wider society and its pension landscape.

The risk margin is designed to be market consistent but, in practice, it has proven a headache for many insurance companies. Insurers have been able to demonstrate that longevity and lapse risk are hedgeable and typically at a materially lower price than implied by the risk margin.

The construct of the Solvency II risk margin also presents an additional problem: interest-rates linked volatility. The risk margin for long-tailed business is very sensitive to rates, so also brings important challenges on how to hedge this risk bearing in mind all the other accounting and capital metrics that are relevant for the insurer.

The most straightforward solution, and one many insurers have adopted, has been reinsuring the longevity risk offshore, to insurers benefiting both from diversification and more favourable regulatory regimes. This provides both SCR and risk margin relief, but at the expense of counterparty exposure. Moreover, offshore structures are increasingly subject to thorough scrutiny by European regulators who want to minimise “jurisdiction shopping” activities.²

Other solutions are also available.

These may offer greater flexibility particularly if the risk margin calculation is subsequently relaxed and they often offer a better break-even cost of capital relief compared to traditional offerings. More efficient proprietary structures can now offer a substantial reduction of the risk margin, giving a positive impact on both the (strengthened) capital front and the (reduced) volatility.

Another approach is to consider reducing the risk margin in ways similar to contract boundary techniques, where the loan is effectively repaid from the expected release of the risk margin over time. Although simple in theory, there are reasons why this tends to be substantially less effective in practice or even impractical compared to the other risk margin techniques described.

4. Longevity hedging

Longevity risk transfer is not just driven by risk margin considerations: it is a hot topic globally and one of the key themes in wider society and its pension landscape.

The numbers tell a clear story: there are substantially more than £1trn (\$1.3trn) of estimated longevity reserves in the UK alone (£3trn if the UK government-related ones are included)³ versus £40bn-50bn of estimated annual traditional reinsurance capacity; this imbalance looks even worse at the global level.

There is clearly a gap that could widen over time because of the punitive capital charge reinsurers themselves can incur on longevity risk and because of the decreasing mortality/longevity imbalance of US reinsurers.

Most players are not feeling this gap yet, largely because of US reinsurance companies aggressively playing in the European longevity landscape, as an effective way to lever on their US mortality exposure. With the increasing domestic North American longevity de-risking market (and, more generally, with decreasing risk appetite), the gap will be more evident to all players. A gap that needs to be filled.

The traditional reinsurance offering typically consists of a full protection for the entire duration of the liabilities whereby the reinsurers take over the future liabilities against a known and fixed leg they are expecting to receive.

Although very simple and effective in de-risking the liability side of the balance sheet, it might still be suboptimal when focusing on specific parts of the insured block (such as deferreds, where traditional reinsurers are often less keen to get involved) or from the perspective of specific metrics (such as the economic cost of reinsurance versus the Solvency II capital saved).

With Solvency II in mind, new types of solutions have emerged that focus on delivering a capital efficient result under this framework. While most of these risk transfers are privately negotiated, there is a well-known public case of Aegon executing a longevity swap in February 2012, using public capital markets⁴. The deal involved:

- A 20-year derivative, hedging the insurance company against a longevity increase between an out-of-the-money attachment point and the 1-in-200 years solvency stress level detachment point
- Inclusion of a commutation mechanism: an effective way to provide longevity protection for liability cash flows occurring beyond the 20-year maturity point through a payment at maturity
- A transaction structured not only having in mind the usual risk hedging purpose but also targeting an optimised regulatory capital impact that provides a structure aimed at reducing the break-even cost of capital below the traditional full transfer reinsurance transaction.

A number of similar transactions have followed for other European insurance companies, focusing on a holistic management of longevity risk from the perspective of both risk appetite and capital metrics.

The gap outlined at the beginning of this section is a clear signal: the traditional reinsurance community alone will not be able to cope with the magnitude of the challenge. Capital market investors are well placed to step up and strengthen their involvement in this market.

5. Lapse hedging

In the run up to the new capital regime, the European Insurance and Occupational Pensions Authority (Eiopa) published studies indicating that lapse capital requirements would count for more than half of the undiversified net life underwriting risk⁵. The market had initially estimated the amount of capital required by lapse stressing to be at least €80bn⁶ (\$95bn), but this could be materially higher now.

Most of the focus so far has been on mass lapse risk. Solvency II asks insurers to apply a crude 40% stress (even higher for group business) that seems unrealistic for most insurance blocks. As such, it lends itself very well to capital management hedging transactions, since the break-even cost of capital (hedging cost vs. capital benefit) can be very appealing. This holds particularly true if the hedge is structured as an out-of-the money contract, as in the publicly disclosed cases by Storebrand⁷ and ASR.⁸

The most common structure that has been implemented so far has targeted a circa 20% attachment point (i.e. approximately half of the mass lapse stress) and a 40% detachment point. While the detachment point is simply driven by the lack of capital benefit in hedging further than the 40% Solvency II stress, the 20% attachment seems to strike a good balance between optimising the cost of capital angle of the transaction, while still having a real risk transfer element.

This sort of deal is often transacted as a two-non-call-one year structure. That is, in practice a one-year transaction but expressed as a two-year structure to ensure full regulatory efficiency for the whole first year.

However such structures are attracting more and more regulatory scrutiny. Some regulators are now challenging the real risk transfer nature of such a short dated transaction. For this reason the insurance linked security (ILS) fund community has now stepped up to provide structures with a substantially higher degree of risk transfer that takes the regulators' concerns

on board.

Hedge offerings have also started to emerge to deal with lapse down risk (fewer lapses than expected) and lapse up risk (more lapses than expected). Unlike in the case of mass lapse, the required stress applies to the whole lapse curve (i.e. a 50% increase/reduction). As such, a multi-year hedge is required, which extends until the natural maturity of the reference block of business.

The solvency capital requirement for lapse is composed of three submodules: mass lapse, lapse down, and lapse up. Over time the relative size of the three can change. It is quite possible the initially biting stress becomes secondary during the life of the hedge, resulting in reduced efficiency. Innovative players can push the envelope offering flexible de-risking solutions that mimic the changing Solvency II stresses insurers face during the life of the hedge, simultaneously maximising the risk margin benefit. This is an important step towards answering the insurance industry's needs.

6. Extreme mortality (and morbidity) hedges

Another area that has often attracted interest from the insurance and reinsurance community is extreme mortality risk transfer. Capital market investors have been present for a long time, since the issue of Swiss Re's first Vita mortality bond in 2003.

Other examples of extreme mortality hedges are the (A)XXX excess reserve financing securitisations (named after the US adoption of Regulation Triple-X) in the US. These types of transactions – although different in their objectives compared to Vita bonds and other mortality transactions – had a similar effect of showing how capital markets are well placed to take these types of risks.

Before the financial crisis, these sort of extreme mortality bonds were typically wrapped by monoline insurers to make them more palatable for conventional capital market investors.

Post-crisis, the involvement of monoline insurers has diminished but specialist investors, such as ILS funds, are still well placed to remove this risk from insurance and reinsurance companies' balance sheets: the fact that extreme risks are unlikely events makes risk transfer transactions a cost effective way for re/insurers to release capital and make their balance sheet more resilient.

In this category we also include transactions such as the Pandemic Emergency Financing Facility issued by the World Bank. Although technically outside the pure insurance landscape, this is a good canvas for potential transactions done by insurers and reinsurers: it testifies to the market's ability to absorb extreme morbidity and mortality risks.

There is also the possibility to create geographically-focused extreme mortality hedges, typically in large urban areas. This is an area of increasing interest among reinsurers, and is one that overlaps with other types of risks, such as terrorism.

7. Loss absorbing capacity of deferred taxes

Solvency II allows the loss absorbing capacity of deferred taxes (LAC DT) to offset losses to own funds under the SCR calculation.

Stated more simply, the SCR calculation aims to reflect a stressed scenario where

Capital markets have already offered solutions to insurers facing regulatory scrutiny on this front: we expect the Eiopa intervention to further enlarge the audience.

the insurer would suffer economic losses impairing its P&L and, hence, capital position. Those same losses would create a deferred tax asset that the insurer could use to reduce its future tax bill, resulting in a higher future post-tax income and hence a stronger future capital position.

However, in the event that losses under the SCR create a deferred tax asset, insurers need to prove to their regulator this can be offset against taxes on future profits. More specifically, insurers need to substantiate sufficient future profits in the business scenario likely to result after the events associated with a SCR shock: a task that often is not straightforward.

Historically there have been significant differences between the approach taken to LAC DT recognition in different EU countries. The Dutch regulator⁹ issued one of the more detailed specifications, requiring insurers to demonstrate both:

- the ability to survive and, if needed, recapitalise after an SCR event; and
- the sustainability of future profits under a range of investment scenarios.

This has given rise to the need for capital solutions, such as contingent capital after

an SCR event, to allow full recognition of the LAC DT asset. Stated alternatively, insurers can enter into transactions that can prove their ability to survive the shocks and have enough future profitability, resulting in the regulatory green light to fully utilise LAC DT as an effective SCR reduction element.

Following an Eiopa review in 2018, the European Commission proposed to amend the Level II Delegated Acts to produce a more consistent EU-wide interpretation of recognition of LAC DT¹⁰. We view this as a necessary harmonisation from which the market will benefit. Capital markets have already offered solutions to insurers facing regulatory scrutiny on this front: we expect the Eiopa intervention to further enlarge the audience.

8. Capital Fungibility

It often happens that re/insurance groups (especially if international) have capital locked within one subsidiary (or one country), capital that does not necessarily count as capital at group level, and that often cannot easily be moved across geographies.

To reduce these potential challenges, large groups are increasingly using internal reinsurance entities (so-called 'mixers') to benefit from diversification and to remove risk from complex jurisdictions, hence reducing the need for capital injection in a growth context. Allianz and Aviva are notable examples of how such internal reinsurance entities have reached a very sizable scale.¹¹

The use of ancillary own funds under Solvency II is an alternative technique that could deliver similar results. Ancillary own funds are unfunded capital instruments eligible to cover Solvency II capital requirements. They might take the form of a "letter of credit", or similar structures, and are an alternative to funding available capital with equity or hybrid debt.

Depending on the jurisdiction, this can be an effective way to help insurance groups keep capital at holding company level as opposed to risking having it

Examples of recovery planning actions¹²

RESTRUCTURE	IMPROVE LIQUIDITY	DE-RISK	RAISE CAPITAL
<ul style="list-style-type: none"> • Portfolio transfer • Closure • Group restructure 	<ul style="list-style-type: none"> • VIF monetisation • ILS (Insurance Linked Securities) • Investment portfolio rebalancing 	<ul style="list-style-type: none"> • Reinsurance • Capital markets • Investment strategy 	<ul style="list-style-type: none"> • Equity and debt • Contingent capital • Group finance • Off-balance sheet

locked at subsidiary levels, especially if they are in complex jurisdictions.

Often though, these low-hanging solutions are not the final answer and international players might have the incentive to enter into transactions that prove the full transferability and fungibility of their global capital.

The right technical solutions vary widely depending upon the specific circumstances of the insurance group, of course. However, they broadly refer to the VIF techniques described previously, with the opportunity to go one step further and consider other, more structured (and more efficient) solutions.

9. Matching adjustment

Matching adjustment (MA) solutions are clearly an area attracting much interest, especially in the UK.

For assets that do not immediately meet the MA eligibility criteria of fixed cash flows without optionality – such as equity release mortgages – insurers have resorted to securitisations to create an appropriate asset.

However, we would note that there are a range of potential solutions, for example involving reinsurance, that may offer alternatives to the well-documented use of securitisations to repack assets for MA eligibility.

Capital markets solutions also exist for liability MA eligibility, for example removing risks associated with contractual surrender rights that might otherwise mean the MA cannot be applied. These have the potential to extend the use of the MA from its current, relatively narrow, application to just the UK and Spain, and to mainly just annuities in payment.

10. Contingent capital / liquidity for recovery and resolution planning

In recent years, regulators and boards

have demonstrated an increased interest in recovery and resolution planning.

Under normal circumstances, insurers manage to levels of capital, liquidity, and operational performance that are consistent with their strategic objectives and the expectations of key stakeholders. However, as circumstances change, a firm may find itself deviating from these targets and, particularly in adverse scenarios, may need to take action in order to recover.

A proactive approach which considers recovery planning actions in advance is likely to lead to a more resilient firm.

One key element of recovery planning can be the contingent capital or liquidity, designed to cover, either certain scenarios (e.g. occurrence of a defined insurance risk event), or a general deterioration in solvency.

Such transactions can take the form of an option to enter into a capital/liquidity trade at that particular point, for example guaranteed liquidity, to meet claims, contingent on an extreme insurance event; or an option, dependent on breach of a particular solvency level, to enter into a contract boundaries, or other capital relief, trade.

Once again, here the authors want to stress that insurers should consider more structured transactions to achieve the final goal in the most effective ways.

CAPITAL PLANNING CHALLENGES

One challenge that is frequently presented to the use of many of the techniques above is their perceived short-term nature. For many insurers, immediate capital ratios are not necessarily under pressure and, if anything, the biggest concern from stakeholders is future own funds generation.

Techniques that improve available own funds often do so largely by accelerating recognition of future surpluses, and so reduce future own funds generation. And techniques that reduce the SCR for a limited period can raise the question from stakeholders of how capital ratios will be restored when they expire.

These are valid challenges, but in our view can be easily addressed by a combination of:

- investigating the potential for solutions

offering longer-term capital relief (see e.g. the section on mass lapses above); and

- exploring a wide range of different capital optimisation tools, both for current and for future application.

CONCLUSION – THE FUTURE

William Pollard, the nuclear physicist and Episcopalian priest, is quoted as having said:

“Without change there is no innovation, creativity, or incentive for improvement. Those who initiate change will have a better opportunity to manage the change that is inevitable.”

Learning and innovation go hand in hand. The arrogance of success is to think that what you did yesterday will be sufficient for tomorrow.”

Life insurance is a long-term industry and there can be an understandable tendency to continue with tried and tested solutions. Complexity for complexity's sake should also be avoided.

However, given the challenges faced by the industry we believe that more structured and innovative solutions, which can be tailored to meet insurers' specific needs, should be actively considered as part of the capital-planning toolkit. ■

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Footnotes

- 1 <https://www.bankofengland.co.uk/speech/2017/looking-both-ways>
- 2 <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/letter/2018/solvency-2-risk-margin.pdf>
- 3 Life and Longevity Markets Association estimates, mentioned in “Magnitude of the Longevity Issue: The Market Opportunity and Capacity” by E. Collinge and J. Lu in “Longevity Risk” by Riskbooks. This same source mentions an annual reinsurance capacity in the UK between £10-15bn. The authors however believe that the new entrants (mostly US and Bermudan players) have increased the size to £40-50bn
- 4 <https://www.aegon.com/investors/News/News/Archive/Institutional-Award/>
- 5 Securis calculations based on Eiopa public material
- 6 Securis calculations based on Eiopa public material
- 7 <https://www.insuranceerm.com/news-comment/storebrand-improves-solvency-with-mass-lapse-reinsurance.html>
- 8 <https://www.insuranceerm.com/news-comment/asr-buys-mass-lapse-reinsurance.html>
- 9 <http://www.toezicht.dnb.nl/en/3/51-235949.jsp>
- 10 https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-5720906_en
- 11 “SFCRs reveal reinsurance ‘mixers’ as big as reinsurers”, InsuranceERM, 24th May 2018
- 12 <http://uk.milliman.com/uploadedFiles/insight/2018/Pre-emptive-recovery-planning-insurers.pdf>