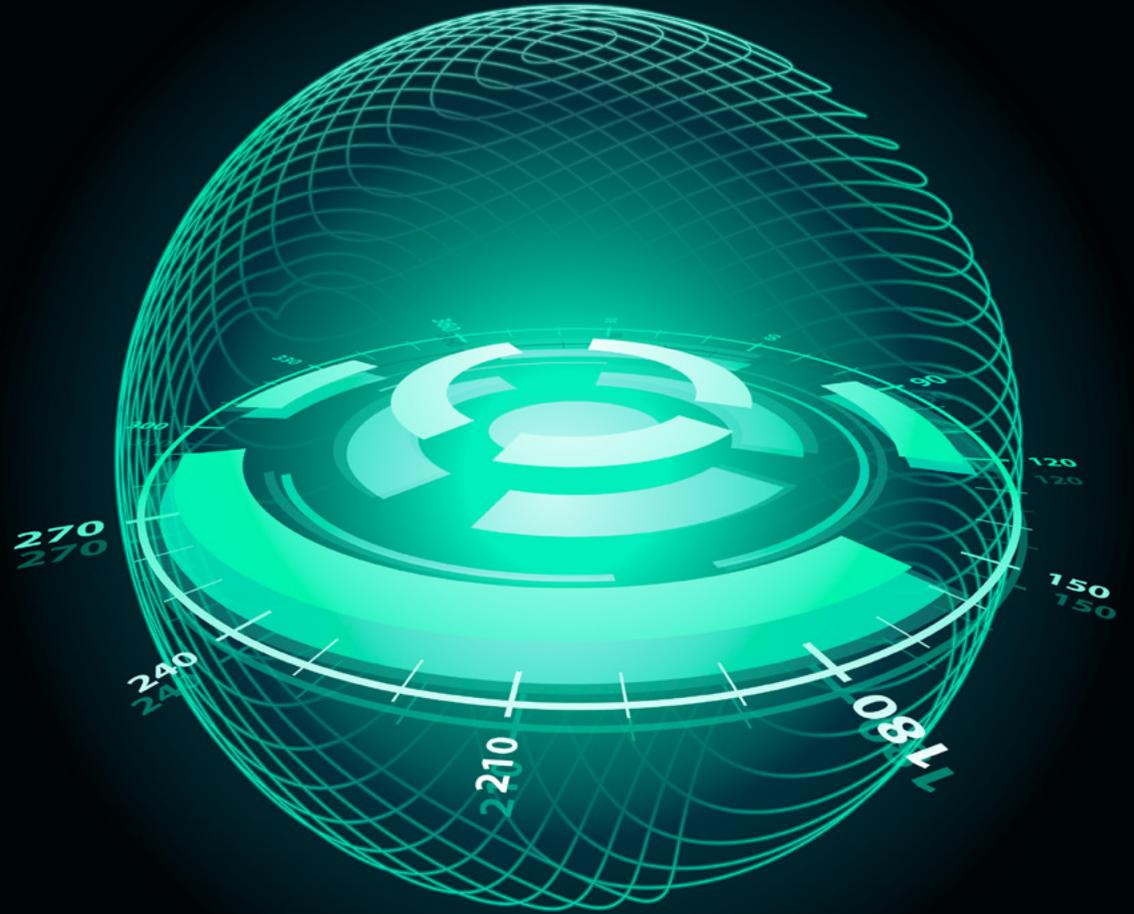




The SAM dust has settled, time to optimise the life insurance balance sheet



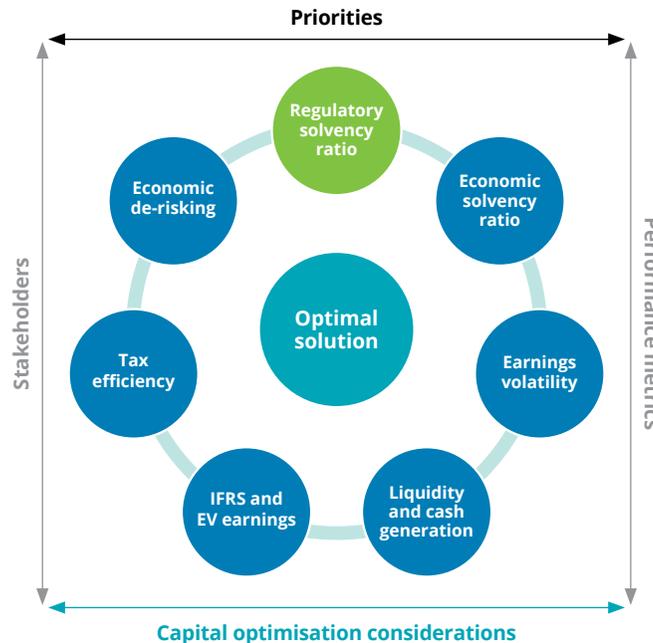
The SAM dust has settled, time to optimise the life insurance balance sheet

Easy wins to improve life insurers' regulatory capital positions

Introduction

We are about two years into reporting under the new Solvency Assessment and Management (SAM) framework, and with the dust of implementation having settled many life insurers are finding a steady rhythm of submitting the new regulatory returns. They have a more hands-on understanding of the processes needed to produce, in particular, the new capital measures, and have a better view of how these measures describe the risks of their businesses. We are seeing investments made to improve the reporting processes needed, but there is also an opportunity to use the deeper understanding to improve the performance of the business with respect to capital consumption.

Capital optimisation requires trade-offs between the different aspects summarised in the adjacent diagram. The optimal solution considers all these aspects across the different stakeholders, taking into account their performance metrics and the business priorities.



In this article we focus on the various options available to optimise regulatory capital ratios under SAM, also referred to as solvency ratios or Solvency Capital Requirement (SCR) covers.

The clearly defined boundaries of the risk-based Standardised Formula SCR provide a good starting point to optimising insurers' capital consumption. Since capital optimisation is not a once-off exercise, we also introduce a framework to embed capital optimisation across an organisation that considers the stakeholders and trade-offs mentioned here.

Optical Capital Optimisation, or Optimal Capital Consumption

With the implementation of Solvency II leading South Africa's implementation of SAM by a couple of years, we can leverage various learnings from Europe. A particular aspect in this regard has been the approach to optimising regulatory capital without any economic substance behind the optimisation.

Similar to certain tax shelters, this has been perceived as "gaming" the system. Our view, however, is that a deep understanding of capital optimisation is essential to understand underlying risk drivers, which enables better risk management and should thus be considered as part of an insurer's Own Risk and Solvency Assessment. Better solvency ratios, based on a sound understanding of risks assumed, also enables insurers to offer more affordable products while still providing the appropriate risk-adjusted return to shareholders.



Which Levers Should Insurers Focus on?

The SAM standardised formula SCR is a complex calculation with many components underlying the Market Risk, Life Underwriting Risk and Operational Risk calculations. Furthermore, diversification of components has a dramatic impact of the resulting solvency ratio. There are thus many levers insurers can pull to influence their solvency ratio, within which we acknowledge two broad types of capital optimisation. The first type does not affect an insurer’s risk exposures per se, but rather results in risk capital being modelled more accurately, and we term this “Modelling Optionality”. The second type changes an insurers’ actual risk exposures, either through risk transfer or risk reduction, and we have split this type into two categories, being those solutions relating to “Reinsurance and Risk Transfer” and those relating to “Balance Sheet Management and Capital Structuring”.

Each of these categories are further grouped into:

- easy wins
- those requiring moderate effort
- those requiring considerable investment, which we refer to as honourable mentions.

These options are widely documented, so in this article we do not describe them in detail, but rather assess the impacts of the various options on capital optimisation.

Cost/Effort Required	Modelling Optionality	Reinsurance and Risk Transfer	Balance Sheet Management and Capital Structuring
Easy wins	<ul style="list-style-type: none"> • Remove conservatism • Allowance for existing management action framework • Interpretation of contract boundary • Illiquidity premium applied to yield curve 	<ul style="list-style-type: none"> • Reduction of insurance liabilities and/or SCR through traditional reinsurance • Reinsurer credit rating, parent guarantee, reinsurance collateral • Concentration risk – use multiple reinsurers • Consider counterparty default relaxations in FSI 2.2 Att. 3(b) * 	<ul style="list-style-type: none"> • Composition of assets considering concentration and default risk • SAM specific ALM strategy (positive and negative liabilities) • Minimise regulatory deductions from Own Funds in FSI 2.3 Section 8*
Moderate effort required	<ul style="list-style-type: none"> • Iterative risk margin (IRM) • External rating model for company/counterparty CQS mapping • Improved tax modelling, particularly maximising LACDT 	<ul style="list-style-type: none"> • Catastrophe risk reinsurance • Mortality swap reinsurance • Mass lapse reinsurance • “VIF” reinsurance solutions – reduce cashflows uncertainty 	<ul style="list-style-type: none"> • Letters of guarantee • Use of Tier 2/3 Basic Own Funds or Ancillary Own Funds, as opposed to just Tier 1 Basic Own Funds • Updates to management action framework
Honourable mentions	<ul style="list-style-type: none"> • Swap curve • Internal model 	<ul style="list-style-type: none"> • Consider capital efficiency of reinsurance agreements • Alternative risk transfer agreements, e.g. insurance linked bonds 	<ul style="list-style-type: none"> • Company structures, subordinated debt, contingent loans • Product design and contract wording, e.g. new product offering • Capital efficient mergers/ acquisitions

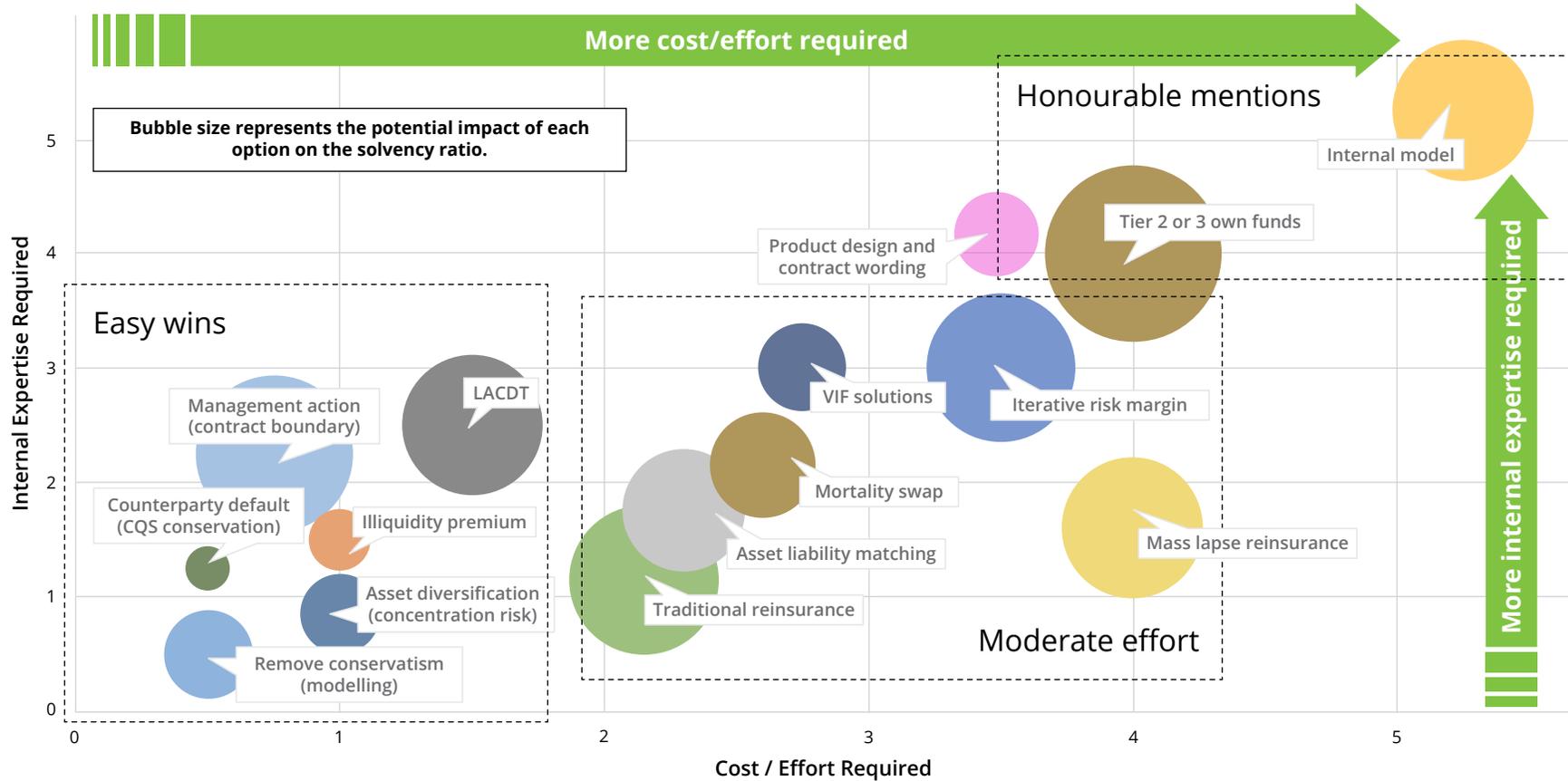
*Any use of “FSI” refers to the Financial Soundness Standards for Insurers, as published by the Prudential Authority

With a small- to medium-sized life insurer in mind, we determined the potential effect of selected solutions on the solvency ratio, relative to the cost/effort and expertise required to implement those solutions. This was done through analysis and judgement, as well as incorporating learnings from the European Solvency II regime. These results must be carefully considered, as they depend on both an insurer’s specific business, as well as the skills, expertise and operational capabilities available within the company.



Our resultant findings for selected capital optimisation solutions are summarised in this diagram.

The potential impact on solvency ratio relative to cost/effort and internal expertise required



As cost/effort and internal expertise increase we move towards the top right-hand corner of the graph. The size of each bubble gives an indication of the possible improvement in solvency ratio relative to other initiatives. For example, implementing an internal regulatory capital model requires significant cost/effort and internal expertise, but the potentially significant improvement in the solvency ratio might be worth the effort.



Easy Wins

Easy wins are summarised in the bottom left-hand corner of the graph, as these are initiatives that can be implemented with relatively limited internal expertise and minimal cost/effort. Many of the easy wins relate to **modelling initiatives**. This can be understood with the context of where insurers' capital thinking was grounded, the Financial Soundness Valuation (FSV) framework. In the FSV world conservatism in modelling was not only required but was also common practice. Under SAM the liabilities should be measured on a best estimate basis, however both implicit and sometimes explicit conservatism remains within some actuarial models and assumptions. Actuaries tend to include conservatism to allow for the uncertainty in assumptions, model risk and data. Actuaries should do more to ensure their numbers reflect a best estimate view. Conservatism is particularly included in the valuation of new contracts.

Furthermore, some insurers choose more conservative Credit Quality Steps than can be justified. Similarly, insurers might not be shortening contract boundaries for loss-making contracts, i.e. not allowing for the fact that such contracts can be assumed to be repriced at the expected repricing date, hence reducing capitalisation of long-term future losses.

A key modelling requirement under SAM is the **loss absorbing capacity of deferred taxes** which, with a moderate level of effort, could reduce the SCR by up to 28%. SAM also provides insurers with the option to increase the discount rate by an **illiquidity premium**, which can significantly reduce reserves for annuity business, albeit with a marginal increase in SCR. Another easy win, particularly at small/medium sized

insurers, is to fully understand the interplay between assets held and components of the Market Risk module. Small tweaks, for example spreading cash assets across multiple major banks, reduces concentration risk and can significantly decrease the Market Risk capital requirement.

Moderate Effort

In the middle of the graph there are several classic risk management tools, for example, **asset liability matching** that has long been used by insurers. This ranges from simple durational matching that can be done with less cost and expertise, all the way to complicated hedging strategies. These provide protection against a wide variety of movements in various financial variables.

Reinsurance is a similarly well-established risk transfer tool, starting with the transfer of mortality and morbidity risk through traditional reinsurance. Similarly, mortality swaps are an effective way to reduce longevity risk on annuity books and at the same time reduce cash flow volatility to better enable asset liability matching. Reinsurance can also provide financing, like VIF solutions which entail transferring large portions of premium to a reinsurer, thereby reducing Own Funds, but also significantly reducing most life underwriting risk components, including lapse risk. The net effect of such a solution could well be an improved solvency ratio. One of the youngest additions to the reinsurers' toolkit is **mass lapse reinsurance**, which transfers a part of the loss arising from a mass lapse event. This is particularly beneficial for risk business with long contract boundaries where the mass lapse SCR is sizeable.

In South Africa insurers also have access to a fundamentally different tool, **application of an iterative**

risk margin (IRM). As the name suggests, the IRM calculates the risk margin and SCR iteratively. While this entails upfront effort, it has been proven to be cost-effective in the long term and can introduce significant solvency ratio improvements, particularly where there are large negative reserves. While the IRM modelling sophistication is not directly comparable to the actual risk transfer achieved through mass lapse reinsurance, both tools achieve similar outcomes in reducing the lapse risk component of the SCR. Insurers could thus consider these tools as alternatives to one another by comparing upfront cost/effort of the IRM approach, including regulatory application cost/effort, against the long-term cost of mass lapse reinsurance premiums.

Honourable Mentions

One of the biggest bubbles on the graph relates to the use of **Tier 2 and tier 3 own funds**, particularly the use of Ancillary Own Funds in the form of subordinated debt and parental letters of guarantee. A parental guarantee can significantly improve the solvency ratio without requiring a capital injection. When applying a parental guarantee in the SCR calculations an allowance for default risk is required, however this allowance is generally small relative to the maximum allowable increase in Own Funds, being say 50% of SCR for Tier 2 Own Funds.

Related to this are regulatory deductions from Own Funds, including investments in an insurer's own shares, in its holding company, cash and deposits at a bank within the same financial conglomerate, participation in financial and credit institutions and net deferred tax assets. Minimising these deductions will improve the solvency ratio.



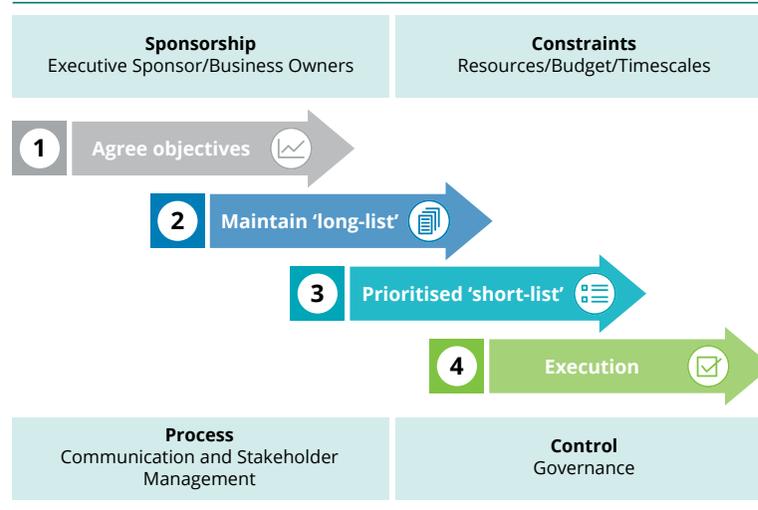
In the top right-hand corner of the graph is use of an **internal model** for regulatory capital. An internal SAM capital model requires significant cost/effort and internal expertise to implement, but could lead to significant improvement in the solvency ratio. These models are not very common in South Africa, especially the life insurance space. Historically it has been very difficult to get approval for use of an internal model from the Prudential Authority.

Finally, the impact of **new products and features** should be fully understood before launch, including the impact on diversification benefits of SCR components. In fact, by launching products that target certain SCR components an insurer can sell more policies without materially impacting its capital requirements, and thus improve Return on Equity.

Ideas are cheap, execution is everything

With so many capital optimisation tools available it is far too easy for insurers to shoot from the hip, resulting in capital optimisation becoming a series of ad hoc and sporadic decisions. This could result in sub-optimal outcomes and/or unintended consequences for other aspects of the business, which are costly to reverse after implementation. Truly effective capital optimisation, on the other hand, entails embedding it throughout the business by establishing a capital optimisation framework which has buy-in from senior management, clearly defined objectives, appropriate controls, and well debated priorities and processes that allow for efficient execution.

Embedding capital optimisation should reach into the heart of an organisation by touching its culture and making capital optimisation a key factor in every business decision. Also, capital optimisation should not just focus on maintaining a certain solvency ratio, but also on stability of such ratios.



A key aspect of such a framework is investigating various optimisation options and documenting these options succinctly in a log or an “ideas hopper”. An ideas hopper would summarise key features of an optimisation option, its impact on key metrics, as well as barriers to implementation if any. The inclusion of barriers allows insurers to easily identify when previously unviable options become viable.

Maintain the 'ideas hopper'

	Capital	Earnings	Liquidity	Volatility	Timescale	Resource	Execution risk
Option 1	+ve	-ve	n/a	+ve	3 months	low	low
Option 2							
...							
...							

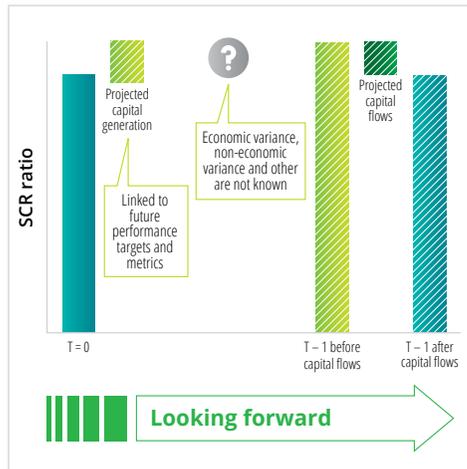
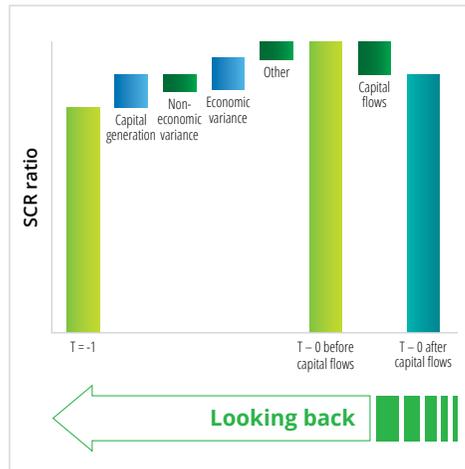


Another basic yet effective tool to encourage a capital optimisation culture and to understand volatility of the solvency ratio, is termed “capital generation”. Capital generation describes the process of analysing, monitoring and projecting the change in an insurer’s regulatory solvency ratio. It is quite popular in Europe.

Looking backward capital generation is as simple as performing an analysis on change in the solvency ratio. This allows the business to have a deep understanding of why the ratio changed, the drivers of capital generation and capital destruction, as well as the offsetting impacts that would otherwise have remained hidden.

Looking forward capital generation entails projecting the regulatory solvency ratio, as already required within the Own Risk and Solvency Assessment. This creates a concrete benchmark for “what-if” analysis against which experience can be measured. Differences between actual and expected capital movements can be analysed for better decision-making and risk management.

In particular, the forward-looking view can be used to test the impact of different capital optimisation tools, under both best estimate and stressed conditions. The effectiveness of the chosen tool(s) can then be assessed retrospectively by analysing the post-implementation impact relative to expectations.



Conclusion

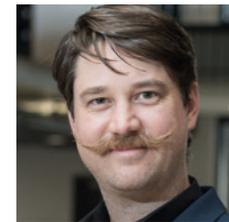
Embedding capital optimisation in a sustainable manner can generate worthwhile rewards and will leave management with a critical business tool that will grow and adapt in line with the opportunities and challenges faced.

To ensure a holistic approach, all stakeholders, priorities, incentives, and trade-offs should be considered. Furthermore, to ensure successful implementation of optimisation initiatives a clearly defined implementation framework with senior leadership buy-in is required. However, that said, there are easy wins that can be implemented today without a detailed capital optimisation framework in place.

Actuaries should move away from using conservatism as an allowance for uncertainty and make a conscious effort to value insurance contracts on a best estimate basis.

Considering the overlap between Solvency II and SAM, we have learned a lot from our colleagues in Europe. Now that the dust of implementation has settled and we have a better view of how SAM measures describe the risks of insurance business, we are well equipped to take on this challenge.

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