

MILLIMAN REPORT

Getting the best from buy-side opportunities

Potential management actions for life insurance acquisitions

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Table of Contents

1. INTRODUCTION AND BACKGROUND	1
2. EXECUTIVE SUMMARY	2
3. POTENTIAL MANAGEMENT ACTIONS	3
3.1 A TAXONOMY OF POTENTIAL ACTIONS.....	3
3.2 CAPITAL SYNERGIES	4
3.3 EXPENSE SYNERGIES	4
3.4 BENEFITS FROM CHANGING ASSET STRATEGY	4
3.5 BENEFITS FROM CHANGING LIABILITIES	4
3.6 OTHER.....	5
3.7 COMBINED ACTIONS	5
3.8 CORRESPONDING ACTIONS IN OTHER MARKETS	5
4. METHODOLOGY FOR EVALUATING ACTIONS	6
4.1 OVERVIEW OF METHODOLOGY	6
4.2 S2AV METHODOLOGY AND THE IMPACT OF MANAGEMENT ACTIONS	8
4.3 OTHER CONSIDERATIONS.....	10
4.4 CONSIDERATIONS FOR US, LONDON AND MAINLAND CHINA	10
4.5 OTHER VALUATION METHODOLOGIES – MARKET-CONSISTENT APPROACHES	11
4.6 OTHER MEASURES OF VALUE – TRADITIONAL EMBEDDED VALUE	12
4.7 ADDITIONAL FINANCIAL INDICATORS	13
4.8 SUMMARY OF PROS AND CONS OF VALUATION METHODS	13
5. SELECTION OF CANDIDATE ACTIONS: RE-RISKING AND DE-RISKING	14
5.1 INTRODUCTION.....	14
5.2 IMPACT OF INVESTING IN “RISKY” ASSETS.....	15
5.3 ILLUSTRATION OF THE IMPACT OF RE-RISKING/DE-RISKING	17
6. SELECTION OF CANDIDATE ACTIONS: OTHER ACTIONS	21
6.1 DIVERSIFICATION BENEFIT BETWEEN RISKS.....	21
6.2 OFFSETTING RISKS	22
6.3 OPTIMISING LACDT	23
6.4 CAPITAL TIERING STRUCTURE	24
6.5 EXPENSE SYNERGIES	25
6.6 NEW BUSINESS STRATEGIES – SCR DIVERSIFICATION.....	26
7. CONCLUSION: SCOPE TO FIND VALUE IF YOU KNOW WHERE TO LOOK FOR IT	27
7.1 SOME TIPS ON HOW TO SEARCH FOR OPPORTUNITIES	27
7.2 HOW VALUE IMPACTS MIGHT BE QUANTIFIED	28
7.3 CONCLUSION	29
APPENDIX 1: BACKGROUND TO NUMERICAL EXAMPLES	30
APPENDIX 2: OTHER CONSIDERATIONS UNDER S2AV	31
APPENDIX 3: IMPACT ON S2AV OF REDUCING REQUIRED CAPITAL OR RISK MARGIN	32
APPENDIX 4: RECONCILIATION OF SECTION 5.3 EXAMPLE USING THE THREE DIFFERENT APPROACHES	32

1. Introduction and Background

We can define successful acquisitions of insurance companies as being those in which the buyer is able to pay a price which is high enough to beat other bidders and convince the seller to sell and, at the same time, low enough to subsequently achieve at least the acquirer's target return on capital. Because there are often several different competing bidders for a possible acquisition and the basic valuation principles of different bidders may generally be rather similar, success in mergers and acquisitions (M&A) often requires the potential acquirer to identify opportunities to increase the value of the acquisition target.

Modern reporting frameworks like Solvency II capture the impact of different actions on risk and value in a much more sophisticated way than traditional financial reporting. This means it is possible to quantify concrete impacts on the value of a target from actions which can be taken by the potential acquirer. This requires deep understanding of insurance businesses and markets and advanced technical actuarial skills to assess the impact of potential management actions, in order to both identify and quantify possible value-adding actions.

We note, however, that considering a valuation measure such as unadjusted Solvency II own funds alone is unlikely to reflect the impact of value-creation actions in an appropriate way, as we will explain.

Historically the work of actuaries in buy-side M&A situations has tended to be "defensive" in nature, i.e., looking for the problems and areas of overoptimism in the valuation presented by the seller and the risks inherent in the target. Whilst this role remains, we have seen an increasing emphasis on seeking value upsides and imaginative strategic thinking in recent years. The authors have worked on more than 100 different M&A projects over the last 25 years and have seen a gradual evolution of the buy-side actuarial consulting role. Some key themes we have seen in recent years are:

- Under modern reporting frameworks there is huge scope to seek additional measurable value in M&A situations. It is a mistake to assume "the target is probably already run efficiently and there is little scope to add value" for a number of reasons: (a) synergies may arise from combining the target with the existing operations of the acquirer; (b) the perspective of the current owner and the acquirer might be different in terms of risk appetite, required returns on capital etc.; and (c) the existing owner may have simply not identified or not understood the potential to add value from certain potential actions
- Given the complexity of modern financial reporting frameworks like Solvency II, using simplified approaches to assess the impact of actions to increase value can sometimes give results which are materially wrong. In Section 6.5 below, we illustrate this with an example showing the impact of expense savings which have a negative impact on a simplified approach and a strongly positive one if a proper assessment is made of expected distributable profits.
- Whilst very esoteric and complex actions may exist to increase value, our experience is that significant upside may be obtained from what might seem to be relatively "plain vanilla" actions because they can impact various different dimensions of the financial position (current and future capital position, future capital generation etc.). Furthermore, several actions can often be combined together to get the maximum benefit.

In this paper we present the ways in which sources of additional value can be identified in buy-side M&A projects, and explain our recommended valuation framework to assess them, as well as discussing other potential value metrics.

Our primary focus is on EU markets (which are subject to the Solvency II regime), but we also touch on the UK, US and mainland China.

2. Executive Summary

It is generally expected that the global market for life insurance M&As will remain buoyant in the next few years, driven by various factors such as, for example:

- The goal of major insurance groups to release capital that is tied up in backing onerous legacy liabilities.
- The influx of new entrants from outside the traditional insurance sector who believe they can create additional value in one way or another.

There is also a long-term trend towards consolidation in financial services, and the goal of insurance groups to streamline their operations and dispose of subscale subsidiaries. The challenges and opportunities of the fast-changing macroeconomic environment with rising interest rates, volatile equity markets and the threat of inflation may also be a catalyst for change. These and other factors are expected to create a strong flow of potential acquisition opportunities. What this paper tries to address is how bidders can be successful in making value-creating acquisitions.

Successful bidders will be those that are able to maximise the potential for the target entity following the acquisition, either due to the nature of their existing business or because of changes in strategy which they may want to introduce. Without being able to add value in this way it will be difficult to make attractive bids for targets and achieve objectives for return on investment.

Sometimes, one bidder in a competitive process has a significant advantage over others. For example, a direct local competitor may have scope to make expense savings through a merger, or achieve capital synergies, that new market entrants would not have. But in other cases, several different potential acquirers may have the opportunity to add value to the target and it will be the one which is most successful in doing this who will likely be the winning bidder.

Modern financial reporting standards such as Solvency II reflect risk and value better than traditional financial reporting approaches. This means that actions to increase the value or reduce the risk of a potential acquisition target will be recognised through the solvency and capital generation positions, and can thus potentially be quantified. This allows a more technical and rigorous approach to assessing which actions can add value.

We provide a taxonomy of how different types of potential actions to improve the returns from an acquisition can be identified. This considers the different elements which can be impacted by management actions such as the assets, the liabilities and the capital position.

We set out a methodology for valuing insurance companies based on projected distributable profits (dividends) based in turn on real-world investment returns, and discounted at a shareholders' required rate of return, with dividends determined as the difference between available and required capital. We then describe how this would look in a Solvency II environment, and show how the net present value of distributable profits can be reexpressed as a series of adjustments to the target's Solvency II own funds. This then permits what we call a "building block" approach to assessing management actions and their value impact. For example, the value impact of de-risking or re-risking the asset portfolio can be assessed through the calculation of what we refer to as the "real-world uplift," together with the associated impact on cost of capital. Analogous methodologies exist in other reporting regimes. We also comment on circumstances where other valuation metrics may be relevant instead of, or in addition to, the primary one we propose.

We then describe in more detail several of the types of actions which can be carried out and provide numerical examples of their quantification. A common focus of buyers relates to the possibility of changing an insurer's strategic asset allocation. For example, buyers who have strong capabilities in asset management may believe they can add value to a target by increasing the level of investment risk to achieve higher returns, which will more than compensate for the additional capital requirements. We refer to this as "re-risking." The opposite strategy, "de-risking," would involve releasing capital by reducing the amount of market risk but at the expense of lower expected investment returns.

We show how it is possible to optimise the level of market risk for a given set of parameters and assumptions. However, we also discuss how the structure of participating liabilities can have significant and quite nonlinear impacts both on future returns accruing to shareholders and on capital requirements, and how these impacts need to be understood well in order to arrive at a sensible re-risking strategy. A naïve approach, focussing mainly on the asset side of the balance sheet, risks identifying nonoptimal strategies where the additional returns created by increasing asset risk are mainly for the benefit of the policyholders, but the capital cost is mainly borne by the shareholder.

Other management actions we illustrate are:

- Diversification benefits from acquirers and targets with different risk profiles.
- Offsetting risks such as lapse and interest rates.
- Optimising the benefit from the loss-absorbing capacity of deferred taxes (LACDT).
- Optimising the capital tiering structure.
- Expense synergies.
- New business strategies.

In the case of expense synergies, we illustrate how a proper consideration of changes in the expense profile on all parts of the economic balance sheet and capital requirements may be necessary to properly assess the benefits from expense savings.

In summary, the correct quantification of the value impact of management actions is a very important step in the buy-side process. Oversimplified approaches can, under some circumstances, be materially distortive and even sometimes directionally wrong. This does not mean that the approach necessarily needs to be highly complex and detailed; on the contrary, simplified and top-down approaches can play a key role in assessing the potential to add value, particularly during an early phase of a potential due diligence process where the available information may be limited.

However, the fact that approaches may be simplified does not mean that they should not be rigorous and technically lucid when estimating impacts. Internal consistency of the various elements of estimations is also crucial. With our suggested approach, initial high-level assessments can be refined later in an M&A process as more information becomes available.

We believe the techniques and methodology we have set out in this paper will increasingly become central parts of the tool kit of actuaries working on the buy-side of life insurance M&A projects, and indeed for non-life and health insurers too. Potential acquirers following these approaches are most likely to be successful in increasingly competitive sale processes.

3. Potential management actions

3.1 A TAXONOMY OF POTENTIAL ACTIONS

When considering actions which can be taken to increase the value of a potential life insurance acquisition, we have a wide range of different possibilities. It is worth defining some taxonomy of these actions in order to consider the potential value levers in a systematic way.

A first aspect we can consider in classifying actions is whether anything is changed in the target company itself. Even without explicitly changing anything we may be able to increase value because various types of capital synergy may exist with the acquirer. Whilst they could be considered a direct consequence of an acquisition, some type of capital restructuring may be required to realise them.

We could then consider making changes to the target company, but gaining advantages through expense synergies rather than changing the assets and/or liabilities of the target. As we shall show in Section 6.5 below, under modern financial reporting frameworks the impact this has on value can manifest itself in several ways.

Next, we can consider leaving the gross liabilities of the target company unchanged, but instead changing the assets.

Finally, we consider the possibility where the liabilities themselves are modified through reinsurance, changes in future new business or in some other way.

We give some examples of management actions which may be typically carried out under each of these categories below.

The actions described below are particularly focussed on the situation in Continental Europe, under Solvency II.

We note that, in some cases, such actions could be carried out by the target even if they were not being acquired (e.g., introducing subordinated debt, asset de/re-risking).

We also provide additional comment on different actions and emphases in the UK, US and mainland China.

3.2 CAPITAL SYNERGIES

Potential areas of capital synergies could include:

- Diversification benefits due to different risk profiles.
- Capital benefits from combining businesses with different risk profiles where the acquiring and target company have exposures to opposite movements in those risks, leading to a reduced overall exposure. In the case of interest rate, this could lead to risks completely offsetting, whereas in the case of lapses it could lead to the capital requirement being reduced to the greater of the two companies' exposures.
- Synergies linked to deferred taxation.
- Synergies due to Solvency II tiering limits affecting the eligibility of capital to cover the capital requirements.
- Synergies due to relative scale or weighting of risk components (e.g., Solvency II concentration risk, operational risk).
- Changes in capital structure (e.g., introducing other forms of capital, such as subordinated debt).

3.3 EXPENSE SYNERGIES

Expense synergies could come from:

- Savings due to overlapping operating capacity and/or increased scale resulting in reduced unit costs.
- Elimination of duplicated IT systems.
- Savings due to removal of duplication of corporate/management activities.

3.4 BENEFITS FROM CHANGING ASSET STRATEGY

Changes made on the asset side could include:

- Re-risking or de-risking the strategic asset allocation (e.g., could include better matching/reduction in interest rate risk from combining portfolios with offsetting mismatches).
- Introduction of new asset classes.
- Changing management actions regarding future investment returns (e.g., rules on realisation of capital gains and losses, crediting rates on participating business etc.).
- Hedging.

3.5 BENEFITS FROM CHANGING LIABILITIES

Changes which could be made on the liability side include:

- Reinsurance of various types.
- Transfer of some portfolios of policies to a third party.
- New business strategy.
- Loss portfolio transfers in respect of already incurred claims.

3.6 OTHER

This classification is inevitably not exhaustive and other types of management actions could undoubtedly be devised:

- Reduction in capital charge from an improved ability to achieve “look through” on assets for market risk capital calculation purposes.
- Introducing or removing an internal model for some or all risks.
- Market-based solutions, acting in a similar way to reinsurance.
 - An example would be Insurance-linked securities (ILS) which, for the payment of a fee, provide additional capital in the event the solvency coverage of the company falls below a certain level. This provides actual protection from adverse events and can also lead to a reduction in the Solvency Capital Requirement (SCR) should the “cover” be triggered in any of the SCR stresses (this is usually best used by internal model firms).
- Discretion which hasn’t previously been exercised (e.g., increasing reviewable charges).

3.7 COMBINED ACTIONS

The greatest value may in fact be added by combining several different types of actions.

A typical acquisition could, for example, include a combination of:

- Capital savings due to:
 - The acquirer and target having different risk profiles, thus achieving diversification benefit
 - Offsetting interest rate and/or lapse risk profiles
 - Removal of capital inefficiencies due to lower-tier capital hitting eligibility limits in the target company.
- Expense savings.
- Increase in the proportion of certain classes of “risky” assets to achieve a more optimal balance of real-world returns and cost of capital from market risks.

3.8 CORRESPONDING ACTIONS IN OTHER MARKETS

This section sets out how the particular actions or emphases described above might vary in certain other selected markets around the world:

US

There is substantial activity in the US M&A market focussed on asset-intensive business. Structured asset sourcing and asset origination capabilities are core competencies that new entrants are bringing to complement the liability expertise of US insurers.

US capital requirements are generally derived from defined factors based on the risk category, although that may alter as recent changes and proposals are underway to move the US statutory framework to a stochastic basis. There are already components such as principle-based reserves (PBR), asset adequacy testing and risk-based capital (RBC) interest rate risk (C3) that rely on asset-liability projections. Thus, developing robust asset liability management (ALM) strategies that incorporate risks on both sides of the balance sheet as well as the US statutory framework constraints enables acquirers to optimise their chances of a successful long-term acquisition.

Another area that has become an integral part of company strategy is assessing the impact of reinsuring business offshore. It is now part of the option set for both internal business planning and public auction processes. Bermuda, in particular, is a popular destination for both reinsurers and sidecars.¹ Its framework has both advantages compared to the US statutory framework as well providing Solvency II equivalence to European insurers.

Milliman has published some white papers giving more detail on these themes.²

¹ A sidecar is a financial entity drawing private investment in a quota share treaty with an insurance company.

² See <https://www.milliman.com/en/insight/best-practices-risk-capital-management-bermuda-life> and <https://www.milliman.com/en/insight/bermuda-living-life-insurance-in-paradise>.

UK

Use of the Solvency II Matching Adjustment (MA) is significant in the UK. If an insurer can achieve better risk-adjusted returns in the MA fund (subject to the relatively strict matching requirements), then it can take credit for some of the excess spread up-front to lower the Solvency II best estimate liability (BEL) via a higher discount rate, and hence increase own funds.

It may be possible to convert some products to more capital-light versions (such as converting with-profits to unit-linked, which occurred as part of the Equitable Life deal). There have also been some schemes (which have required court scrutiny and approval) that have allowed firms to restructure onerous policyholder guarantees.

Outsourcing (e.g., of policy administration) is quite popular in the UK as a means of achieving expense reductions.

MAINLAND CHINA

M&A transactions in mainland China to date have focussed on growth rather than on optimisation of existing insurance portfolios. Thus, acquirers often consider synergies related to business strategy first (e.g., access to new distribution channels or to new market segments) before the types of management actions described above.

For acquirers who are insurance companies, many of these actions are typically evaluated during due diligence, although often at a relatively high level due to limited information available.

However, quite often the acquirers are new entrants who are not from the insurance industry or even not from the financial industry. They would typically focus more on optimising the asset side of the balance sheet given their lack of familiarity with the liabilities.

4. Methodology for evaluating actions

4.1 OVERVIEW OF METHODOLOGY

In our experience, most acquirers of insurance companies make their acquisition decisions primarily based on the future distributable profits expected to arise from the target company. They may also be interested in alternative value metrics, such as the impact on International Financial Reporting Standard (IFRS) profits or market-consistent embedded value (MCEV). We will discuss them more briefly.

However, our primary focus and the methodology we will adopt for evaluating potential management actions is based on *real-world distributable profits discounted at the shareholders' required rate of return*.

Traditionally, in Europe, statutory profits were used for the purpose of transaction valuations, with a certain level of capital locked in (based on the Solvency I capital regime). This corresponded to a traditional embedded value (TEV) approach in Europe. Prior to the introduction of Solvency II (SII), TEV measured expected future distributable profits on a statutory basis (see Section 4.6 below for further details). With the introduction of SII, however, statutory profits may not correspond to amounts that may be distributed as dividends, which are likely to be driven instead, or as well as, by considerations of capital requirements and the economic (i.e., SII) balance sheet.

At its simplest level we may define:

- **Required capital:** The amount of capital an insurer is required to hold, which may be based on prevailing regulations together with the insurer's own internal and/or rating agency requirements.
- **Available capital:** The value of assets less value of liabilities, available to cover the required capital.

If the available capital exceeds the required capital, a dividend can be paid (although sometimes other constraints on dividend capacity may exist in some circumstances); if available capital is less than the required capital, additional capital needs to be injected (like a negative dividend).

Thus, this methodology requires the projection of both available capital and required capital.

If, at the initial valuation date, available capital is equal to required capital, then future distributable profits will be driven by future changes in available capital relative to required capital. We will refer to this as *future capital generation*.

Future capital generation reflects items not captured in the initial values of available and required capital. Items of future capital generation could include:

- Required capital and other provisions running off as the portfolio and its associated risks run off.
- Future investment returns not reflected in the initial valuation of assets and liabilities.
- The impact of future management actions.
- Future new business.

The shareholders' required rate of return used to discount distributable profits will represent the return that those investors require on capital invested in a particular enterprise, reflecting their views of the risks of a transaction. Thus, there is a cost associated with holding capital and other provisions, as assets backing those items are likely to yield returns lower than the shareholders' required rate of return.

This cost of capital effectively means that the present value of future capital generation related to the runoff of required capital and other provisions is lower than the face value of those items. Therefore, the amount of capital which needs to be held, together with the timing of its release, is a critical part of the valuation. The more capital is held, or the longer it is held, the lower the resulting valuation, all other things being equal.

We note further that, if required capital calculations reflect actual risks taken (rather than being based on simple ratios which are invariant to actual risks), then changing the risk profile will impact the valuation. Thus, reducing risk may allow capital to be released, reducing the cost of capital and hence increasing the valuation. Typically, however, risks (particularly market risks) will be taken by an insurance company in the expectation of being rewarded with higher returns, hence we can expect a reduction in risk to be accompanied by a reduction in returns. Whether the valuation will increase or not will therefore depend on whether the risk-return trade-off is positive or negative.

It is worth noting that under the old Solvency I rules, capital requirements were formulaic, meaning that, for a given discount rate, TEV would generally increase if higher risks were taken because there was no increase in capital requirements due to taking additional risks. In theory the valuation could be adjusted by increasing the risk discount rate to reflect the level of risk, but this is a blunt instrument and introduces an element of subjectivity.

Whilst market-consistent calculations are used to determine available capital at a particular balance sheet date (under economic capital regimes such as Solvency II), the projections underlying our methodology are real-world. Thus, for example, it would be assumed that investing in certain "risky assets" would generate projected returns higher than "risk-free" and these higher returns would then be included as capital generation. However, there may be the requirement to hold additional capital to reflect investment in risky assets, which would increase the cost of capital, and hence reduce the valuation.

Management actions which affect a valuation post-transaction can have an impact on:

- **The starting position:** That is, the initial balance sheet position in respect of available and/or required capital immediately following the transaction. Thus, a management action which increases initial available capital, or reduces initial required capital, will allow an immediate release of capital.
- **Future capital generation:** Management actions which affect future capital generation could be carried out either immediately following the transaction or in the future. For example, a realigning of the asset portfolio to more risky assets could be carried out either at the start or over a future period, but the additional capital generation due to higher expected real-world returns would occur in the future in either case.

4.2 S2AV METHODOLOGY AND THE IMPACT OF MANAGEMENT ACTIONS

For evaluating management actions, we will initially focus on the Solvency II Appraisal Value (S2AV) methodology, which we have previously developed. Afterwards we will discuss more briefly other methodological approaches.

The background to the S2AV methodology is described in Section 4.1 above, developed specifically in the context of Solvency II as the basis for available and required capital.³ Thus:

- Available capital is defined in terms of Solvency II own funds (OF) available and eligible to cover required capital.
- Required capital is defined as a function of the Solvency II Solvency Capital Requirement (SCR). Typically, an insurer will hold something higher than the SCR, and required capital will be this higher amount. In this paper we will assume that the required capital can be expressed as a simple percentage (greater than 100%) of the Pillar I SCR. Thus, for example, we do not include discussion of additional capital potentially being required as a result of Pillar II considerations.

We note that there may be other constraints on distributable profits beyond a comparison of available and required capital. Some examples are given in Section 4.3 below.

Solvency II is based on a “market-consistent” valuation of assets and liabilities.⁴ Broadly:

- Assets are valued at market value.
- Liabilities are valued by discounting projected cash flows determined on a best estimate basis at risk-free rates of return, to give the best estimate liability (BEL). Where appropriate, a stochastic calculation is carried out in order to incorporate the time value of financial options and guarantees (TVFOG). To this is added a risk margin (RM) to allow for non-hedgeable risks.
- The SCR (at least under the SII standard formula) is determined by applying a series of stresses to assets and liabilities, and combining the results to allow for diversification benefits between risks.

The expected future real-world distributable profits could in theory be calculated by making a complete projection of the Solvency II balance sheet and capital requirements, including allowance for capital generation items such as future real-world returns and new business.

In practice, particularly in the context of transaction work, this could be very challenging because the time and information available to a potential acquirer during a process are typically rather limited. However, it can be demonstrated that the S2AV can be expressed as the sum of various building blocks, producing the same result as discounting future distributable profits. Thus, S2AV can be expressed as:

Initial own funds (OF)

- Cost of capital from holding required capital (CoC_{RC})

+ Initial risk margin (RM)

- Cost of capital from holding risk margin (CoC_{RM})

+ Capital generation from future real-world uplifts⁵

+ Capital generation from future new business

In Appendix 4, we provide an example showing a reconciliation of these two methods, and we also show how the distributable profits in each time period can be broken down into the sum of capital generation items.

³ For a full description see the paper: <https://uk.milliman.com/en-gb/insight/2016/s2av-a-valuation-methodology-for-insurance-companies-under-solvency-ii/>.

⁴ We discuss below deviations of Solvency II from a pure market-consistent methodology and their implications.

⁵ By “real-world uplifts,” we mean additional investment returns, which we expect to earn above risk-free on assets that are not deemed to be risk-free (such as equities and corporate bonds).

By expressing the valuation in this way, the different building blocks can be estimated with varying degrees of sophistication, depending on the requirements of the transaction, materiality, quality of information available etc. Expressing and decomposing the value into building blocks in this way has a number of advantages:

- More feasible calculation in the context of an M&A transaction.
- Transparency in seeing where the drivers of value are.
- Readily possible to make adjustments to the existing blocks to improve the sophistication of the valuation or reflect further features of the business not previously considered.
- Provides reasonableness check, if eventually a full real-world balance sheet projection is carried out as the basis for the valuation.
- Easier assessment of the impact on value of management actions (which is the focus of this paper).

In Section 7.2 below, we provide some guidance on how the various items may be determined in practice.

Because the Solvency II SCR is intended to reflect actual risks taken, actions which increase or decrease risk will have a corresponding impact on required capital (and risk margin in the case of non-hedgeable risks), and hence the cost of capital and thus S2AV. This is in contrast with the Solvency I regime, where capital requirements were based on simple ratios and did not reflect actual risks, other than at a very broad level.

For example, the impact of increasing investment in risky assets on S2AV could be seen as a combination of:

- Increased capital generation from additional real-world returns (+)
 - This impact may be reduced if some of the additional returns go to policyholders via profit sharing
- Increased cost of holding required capital (-)
 - This may be mitigated by the impact of the loss-absorbing capacity of technical provisions (LACTP).

Management actions which reduce capital requirements could be seen to have an impact on S2AV as a combination of:

- Reduced cost of holding required capital (+)
- Reduced cost of holding risk margin (in respect of non-hedgeable risks only) (+)

In Appendix 3 we discuss how reductions in required capital or risk margin are reflected in S2AV as a reduction in cost of capital (or conversely for increases).

However, actions which reduce capital requirements may also result in reduced future profits. For example, capital requirements can be reduced through reinsurance, but the reinsurer will typically want to make profits from taking on risks and so there would typically be a corresponding reduction in own funds.

Writing future new business could result in an impact on S2AV arising from:

- Future capital generation arising from new business on a standalone basis (+)
- Reduced capital requirements on a marginal basis when combined with in-force (+)
 - This may arise where in-force and new business have different risk profiles, thus giving risk to diversification benefits when they are considered together.
- Other potential marginal impacts, such as a reduction in unit costs, impact on ALM position etc. (+/-)
 - For example, the existing ALM position may be very unmatched, requiring sales of bonds in the future, but new money arising from new business sales could reduce or remove this requirement.

If expense savings can be made this could lead to a reduction in BEL, with a resulting increase in own funds as well as a reduction in expense SCR, which would reduce both capital requirements and risk margin, and hence the cost of capital associated with holding these items.

In summary, we believe that the S2AV approach provides a useful framework for considering and evaluating the impact of management actions on valuation.

4.3 OTHER CONSIDERATIONS

There are various issues which may potentially require adjustments within the S2AV calculations described above. Some of them are listed here. For further details see Appendix 2. Some of these issues arise because of particular features of Solvency II. They include:

- Adjustments required to own funds, for example to isolate the actual shareholders' value:
 - Adding back foreseeable dividends
 - Deducting subordinated debt⁶
- Ultimate forward rate (UFR) drag:
 - The UFR is a feature of European Insurance and Occupational Pensions Authority (EIOPA) discount curves (underlying Solvency II) extrapolating to high long-term rates (i.e., the so-called “ultimate forward rate”) after the last liquid point (LLP). Potential acquirers may want to capture the benefit of this high discount rate in reducing the value of liabilities under Solvency II, but also to capture the anticipated cost of the fact that the construction of the EIOPA curves means that the impact of the UFR is expected to move one year further into the future in each future year of projection. A full description of the issues involved is beyond the scope of this paper, but this issue can potentially have a material impact on value.
- Adjustments to the “risk-free” curve under Solvency II such as the Volatility Adjustment (VA), Matching Adjustment (MA) and transitional measure. See Section 4.4 below in relation to the UK.
- Transitional measure on technical provisions (TMTP).
- Ensuring that the future new business volumes considered are consistent with contract boundaries assumed under Solvency II.
 - For example, future renewal premiums not considered in the Solvency II BEL should be considered as future new business. This will be particularly important when basing the impact of new business on a business plan which may not define new business in the same way as the Solvency II contract boundaries.

Other points relate to potential constraints on dividend-paying capacity not related to Solvency II. They include:

- Requirements in certain markets to hold the full face value of assets backing unit-linked business or to cover certain blocks of participating liabilities with assets measured at book value.
- Constraints linking maximum dividend distributions to statutory profits in certain markets.
- Liquidity constraints.

4.4 CONSIDERATIONS FOR US, LONDON AND MAINLAND CHINA

This section sets out how the above valuation methodology might vary for selected markets around the world.

US

In the US, the standard valuation methodology is based on the projected distributable earnings of the business. It is similar to the embedded value framework with the additional consideration for the franchise value of the business and with assumptions developed from an independent perspective.

Sellers and acquirers also find it valuable to use the methodology in evaluating synergies with their existing business as well as understanding the impact of not pursuing a transaction.

UK

The S2AV approach discussed above would be suitable for use in the UK.

Adjustments in respect of use of the Matching Adjustment (and to a lesser extent the Volatility Adjustment) should be considered, as mentioned in Section 4.3 above. This will mean that real-world uplifts for the particular block in question will be uplifts above the risk-free rate plus the Matching Adjustment (or Volatility Adjustment).

⁶ Note that however it may be wished to capture the financial benefit of subordinated debt due to the interest payable on the loan being lower than the shareholders' required cost of capital

Transitional measures on technical provisions (TMTP), as noted in Section 4.3 above, are used by some firms in the UK, so there is an unwinding of this benefit over time (with an impact on capital generation). Given that the TMTP for many firms relates to the introduction of the risk margin versus the previous risk-based solvency regime in the UK—the Individual Capital Assessment (ICA)—this could be considered as similar to a “negative risk margin” in a valuation.

Note that UFR drag, mentioned in Section 4.3 above, is not really an issue in the UK, as the LLP, beyond which the Solvency II discount curves are extrapolated, is currently 50 years in the UK.

MAINLAND CHINA

Typically, in mainland China a TEV approach is used.

This includes cost of capital, using the China Risk Oriented Solvency System (C-ROSS), which has similarities with Solvency II and adopts the three-pillar structure. It includes features similar to Solvency II such as: diversification benefit, loss-absorbing capacity, tiering of capital requirements etc., but with a different level of capital shocks.

4.5 OTHER VALUATION METHODOLOGIES – MARKET-CONSISTENT APPROACHES

Whilst we favour the use of the S2AV methodology for the reasons outlined above, other valuation approaches are sometimes encountered. One such alternative approach sometimes used is to focus on a “market-consistent” valuation, for instance based on Solvency II own funds, or MCEV. This is a well-established approach for financial reporting and has the advantage of requiring comparatively few subjective assumptions. However, in the context of a valuation for an M&A transaction this approach has a number of disadvantages:

- It is intended to be a snapshot at the valuation date, based on a market-consistent view of assets and liabilities. It is not a forward-looking projection, and so doesn’t provide any insights into the amount and pattern of future distributable profits.
For example, consider a pure unit-linked business with a significant value of in-force business (VIF) based on projected future asset management charges, but a significant capital requirement in respect of market risk because those charges are dependent on asset values and would be reduced through SCR market shocks (e.g., for equities). An MCEV would suggest that the in-force value is a concrete asset, but in reality it may not become distributable until the asset management charges gradually emerge over the residual duration of the contracts, due to the requirement to hold capital for market risk.
- It doesn’t allow explicitly for all risks. Whilst non-hedgeable (typically nonmarket) risk may be allowed for via the Solvency II risk margin, or the MCEV cost of residual non-hedgeable risk (CRNHR) adjustment, market risk is arguably not allowed for explicitly in a meaningful way. This treatment of market risk in MCEV is aimed at ensuring an arbitrage-free principle and hence avoiding the possibility of artificially creating value by changing measurement approach, in particular around investments. This is a valid and useful objective in the context of financial reporting, but for the purpose of assessing an investment opportunity or evaluating a management action it creates an unhelpful rigidity.
- There is no possibility of allowing for a future real-world view under Solvency II or MCEV. This can be seen by considering the impact on market-consistent valuations of an increase in the amount of market risk. For business with policyholder participation features based on investment returns, an increase in market risk will generally increase the time value of financial options and guarantees (TVFOG) because greater volatility in investment returns will create more asymmetry in the liabilities. Under a market-consistent valuation there will not be any compensating real-world uplift, hence increasing market risk will tend to always reduce both the Solvency II OF and MCEV (the latter also because of frictional costs). The fact that MCEV can be systematically maximised by minimising market risk in this way is counterintuitive. This seems to be intuitively wrong and inconsistent with the way insurance companies are almost always managed, which is by having a balanced strategic asset allocation that involves taking some level of market risk.⁷ It is therefore not possible to assess management actions which relate to investments or ALM under a market-consistent view.

⁷ Additionally, taking some level of market risk for participating business may be necessary to provide attractive returns for policyholders, in order to reduce the risk of surrenders and attract new business.

- Solvency II OF and MCEV do not allow for an investor's required return on capital, except to the extent that, under MCEV, an investor can choose the cost of capital it wishes to apply in respect of non-hedgeable risks (for Solvency II this is prescribed as 6%).

We therefore believe that such market-consistent measures are of limited value in carrying out valuations for the purposes of transactions, or assessing the impact of management actions in the context of transactions. In our experience, the majority of investors are not making their acquisition decisions on such a basis (although some still are).

4.6 OTHER MEASURES OF VALUE – TRADITIONAL EMBEDDED VALUE

A commonly used valuation approach in M&A projects is the traditional embedded value (TEV). This is a well-established approach which is basically calculated as follows:

- Adjusted net asset value; plus,
- The present value of future real-world profits discounted at the shareholders' required rate of return; less,
- The cost of capital for holding the required capital

To arrive at a full appraisal value, the value of future new business may be added using an analogous valuation approach.

TEV overcomes several of the objections raised above in respect of market-consistent valuation metrics, including, in particular, the following:

- It is a real-world approach.
- It allows for the cost of capital associated with all risks, not just non-hedgeable ones.
- The shareholders' required return on capital can be used.

In fact, a TEV approach is useful in many contexts, and has a number of aspects in common with the S2AV methodology we have described above. However, there are some shortcomings which are worth bearing in mind when considering this valuation approach:

- Historically, TEV was a purely deterministic approach, with the risks associated with embedded options and guarantees being captured only via the risk discount rate (shareholders' required return on capital). The risk discount rate is a rather blunt instrument for this purpose and there is not a clear methodology to determine it; this was one of the key objections to the TEV methodology which led to the eventual development of MCEV.
- In a Solvency II environment, the TEV approach typically assumes a cost of capital based on Solvency II required capital and the target solvency ratio, but often ignores the fact that this capital requirement may in part be met by the excess of Solvency II OF over the accounting net asset value (effectively the value in-force or VIF,⁸ being the difference between accounting liabilities and Solvency II technical provisions, although there may also be differences in the valuation of assets).

In theory it is possible to adjust for this factor, by considering a cost of capital based on the required capital less the "Solvency II VIF" and this is sometimes done. But if it is done approximately (e.g., by assuming that VIF is a constant proportion of required capital) then another source of potential distortion is introduced. If this is done precisely then in fact you end up with something which is equivalent to the S2AV approach, but with arguably a less clear presentation of results, albeit one which will be more familiar to some readers.

⁸ The opposite would apply if there is negative VIF, e.g., due to the accounting reserves being lower than the Solvency II technical provisions, in which case the TEV would overstate the net present value of distributable profits.

4.7 ADDITIONAL FINANCIAL INDICATORS

In addition to the core valuation approach adopted, it is commonly the case that an acquirer might want to consider the impact of a potential acquisition on other financial indicators. This could include projected local profits or IFRS profits on the outgoing IFRS 4 or the new IFRS 17 standard. This could be done for either or both of the following reasons:

- Because IFRS or local accounting profits are a constraint on dividend-paying capability (as has been mentioned previously). In this case, an adjustment should be made to reflect this constraint on the amount and timing of distributable profits, but we would recommend that the primary focus should still be on dividend-paying capability under the Solvency II basis. Constraints on dividend capacity due to accounting or other⁹ reasons effectively create a further cost of capital because the company is forced to maintain a higher solvency ratio than it is targeting for pure solvency reasons. This could be adjusted for in varying degrees of sophistication, depending on the materiality of the constraint.
- Because the shareholder wishes to meet objectives in terms of these other criteria for their own purposes. For example, a potential acquirer may want to make an acquisition only if it does not dilute group profitability by more than a certain percentage. In this case the valuation is not directly impacted by this criterion, which just becomes an additional constraint to check.

IFRS 17 profits are likely to be an indicator which will be considered by potential acquirers increasingly as the new financial reporting standard comes into force. The fact that IFRS 17 will be an externally published measure, in many countries, means investors are likely to be particularly interested in it. In practice we have seen relatively little focus on IFRS 17 in M&A contexts to date (with the main concern being the state of readiness of the target to produce IFRS 17 accounts), but this seems likely to change as familiarity with the standard increases.

4.8 SUMMARY OF PROS AND CONS OF VALUATION METHODS

In Figure 1 we summarise the pros and cons of the main methodologies presented by sellers in recent years in Europe (the position may vary somewhat in other parts of the world), with some comments.

Of course, it is not necessary for a potential buyer to adopt the same methodology as the seller!

FIGURE 1: PROS AND CONS OF VALUATION METHODS

	PROS	CONS	COMMENTS
SOLVENCY II OWN FUNDS	SII is a public reporting standard, so subject to a fair level of scrutiny from the insurance supervisor (and, in many countries, also subject to external audit) and with generally well-defined principles arising from European regulation. The use of market-consistent principles provides objectivity, but in practice the SII rules diverge from a pure market-consistent standard.	Does not provide, in itself, a real-world view, nor any perspective on when distributable profits may emerge (beyond the initial solvency position which might allow an immediate distribution).	SII own funds (OF) are an important building block in developing a projection of distributable profits, but if only the OF are provided it may not present the full picture.
MCEV¹⁰ (MARKET-CONSISTENT EMBEDDED VALUE)	If the reader is focussed on a market-consistent view of value, then MCEV can allow a "correction" of some of the deviations from market consistency of SII (e.g., in respect of the UFR underlying the SII term structure).	Generally, the issues are as for SII. However, to the extent that MCEV differs from SII OF, it may give a distorted view of what value is actually distributable, e.g., through having longer contract boundaries than under SII.	The CFO Forum MCEV Principles ¹¹ allow full alignment of MCEV with SII standards. For an investor looking at the net present value of distributable profits it will generally be unhelpful to present an MCEV on a basis which varies from SII.

⁹ Another example of a constraint could relate to liquidity requirements.

¹⁰ Another methodology which was quite common a few years ago was the European Embedded Value (EEV). The method is not in very common use today and we do not discuss it further in this paper.

¹¹ European Insurance CFO Forum Market Consistent Embedded Value Principles. Copyright© Stichting CFO Forum Foundation 2008.

	PROS	CONS	COMMENTS
TEV (TRADITIONAL EMBEDDED VALUE)	Well known and established. Provides a real-world view, together with cost of capital taking into account shareholders' required rates of return.	If the cost of capital is based on target capital on a SII basis, then this may distort the actual timing of distributable profits, because these profits will depend both on changes in SII OF and changes in required capital. The method thus risks comparing "apples and oranges."	It is possible to adjust the cost of capital to allow for the part of capital covered by the VIF, but such an adjustment may be distortive if not done carefully.
S2AV¹² (SII APPRAISAL VALUE)	This method provides a more direct view of value based on real-world distributable profits, and cost of capital based on shareholders' required rate of return. Can be reconciled with capital generation on a SII basis. Furthermore, the building block approach (described in Section 4.2 above) helps in assessing the impact of management actions.	Will be unfamiliar to some readers.	We note that S2AV can be reexpressed as TEV for presentational purposes.

In summary, we believe that the S2AV approach provides the most useful framework for considering and evaluating the impact of management actions on valuation.

In the following sections we outline an approach using the net present value of distributable profits (i.e., S2AV), which we will use to illustrate our approach to assessing management actions. Other methodologies can of course sometimes be used for valuation purposes and to assess management actions, but in some cases they may not be suitable, as discussed previously.

5. Selection of candidate actions: Re-risking and de-risking

5.1 INTRODUCTION

In this and the following section we will consider some typical candidate management actions which could be carried out as part of, or following, an acquisition transaction.

Section 5 focusses specifically on the implications of increasing or decreasing the level of asset risk in a target, often a key focus for potential acquirers.

Section 6 covers a selection of other types of management actions.

They are not intended to illustrate every single type of management action, but we have shown a range from across the taxonomy set out in Section 3 above. We will apply the S2AV valuation methodology described in Section 4 above to show the impact of each action, including the nature of the value creation.

Our numerical examples are intended to be simplified, and not "real life." Thus, although they may be broadly "realistic," no conclusion should be drawn about the relative merits of the different examples based on the numerical examples themselves.

Further details on the numerical examples are given in Appendix 1.

As discussed in Section 4 above, the value of each entity (per S2AV) in the examples which follow is taken as the net present value at the risk discount rate of distributable profits in each future year. We express S2AV as the sum of the building blocks set out in Section 4.2, but with:

- Initial own funds broken down into required capital and free capital. As described previously, free capital is assumed to be distributable immediately, and therefore has no cost of capital associated with it.
- The cost of capital in respect of required capital and risk margin merged into one item (to avoid the graphs becoming overly complex).

¹² In this table we focus on valuation of in-force, so the term Solvency II Embedded Value (S2EV) may be more appropriate, but in general the same considerations apply whether we are looking at the in-force value only or also future new business to generate an Appraisal Value.

We start from the position where initial own funds equals required capital.

Where a management action results in a reduction in required capital with no change to the own funds, it means that the same level of own funds is now split into a lower required capital plus a free capital component. This results in a reduction in the cost of holding the required capital, which increases the valuation.

A management action that results in a reduction in risk margin produces an increase in own funds, together with an equal and opposite reduction in the level of risk margin assumed to be released into distributable profits. This results in a reduction in the cost of holding the risk margin, which increases the valuation.

5.2 IMPACT OF INVESTING IN “RISKY” ASSETS

The proper treatment of the impact of investing in “risky” assets (i.e., assets which are expected to earn a premium above risk-free) is often a key issue in valuation and in assessing potential management actions in M&A transactions. Therefore, we make a few more comments about it here, even though a full treatment of this topic is beyond the scope of this paper.

Let us assume we have a company writing participating business with policyholder crediting (bonuses) based on book value investment returns on a block of assets, less a fixed management fee and subject to a minimum guarantee. Further, let us assume the company has entirely “risk-free” investments and we wish to understand the impact of investing a certain proportion of assets in corporate bonds with a particular risk rating.¹³ The impact on value under S2AV will be comprised of the following:

- The value of the real-world (RW) uplifts which are not passed on to the policyholder via profit sharing (i.e., the shareholders’ share of these uplifts); less,
- The cost of capital arising from the additional capital which has to be held due to holding these risky assets. Under the Solvency II standard formula SCR spread risk sub-module for corporate bonds, this capital requirement is based on a defined percentage of the market value of the bonds, with the percentage varying according to the credit quality of the bonds and their duration. The SCR will be reduced by the LACTP to the extent that the value of liabilities can be reduced due to the corresponding SCR spread stress.

For a block of participating business, a full stochastic valuation using an ALM model would generally be carried out, in order to capture the impact of this investment in risky assets on both:

- The TVFOG component of Solvency II liabilities
- The LACTP

We do not comment further on this in this section but consider the situation of a deterministic valuation only.

The level of LACTP can vary due to a number of factors including:

- The extent to which guarantees are in-the-money or out-of-the-money (which will determine the extent to which future profit participation can be reduced under the SCR stress).
It should be noted that the “moneyness” of guarantees will not depend precisely on how the guaranteed minimum compares to the risk-free rates (under the Solvency II term structure) because the profit participation often depends on book yields, which will be dependent on, among other things, the level of unrealised gains and losses in the asset portfolio.
- The extent to which the management rules allow the impact of the SCR spread shock to reduce book yields over a number of years. For example, if the shock creates an unrealised loss, but it is possible not to realise this and instead let it emerge via reduced book returns over several years, then generally this should help to achieve a higher level of LACTP.

LACTP as a proportion of the gross asset shock and the proportion of the real-world uplift which goes to policyholders as profit participation are related concepts and could be similar under some types of circumstances.

For example, if all guarantees are deeply in-the-money then a real-world uplift is likely to go 100% to shareholders, but there will be no LACTP (no possibility of absorbing losses arising from the SCR spread shock). On the other hand, if all guarantees are well out-of-the-money then the LACTP could even be 100% of the gross shock, but all the real-world uplift might go to the policyholders.

¹³ Note that similar considerations will apply when we simply want to understand the impact of existing investments which are already in risky assets on the base valuation.

The LACTP will depend on the impact on policyholder crediting of a reduction in book yields (which could potentially be large unless the impact of the shock is spread over many years) and the policyholders' share of the real-world uplift will depend on the impact on policyholder crediting of a more modest increase in book yields. This means, for example, that under some circumstances most of the upside could be passed to policyholders whereas the effect of a shock could be felt mainly by the shareholders, particularly where guarantees are close to being at-the-money. Therefore, the relationship between the benefit to the shareholders of a real-world uplift and the cost of capital associated with taking market risk can be very nonlinear. Care is often needed to understand these effects well in order to understand the benefit of re-risking or de-risking.

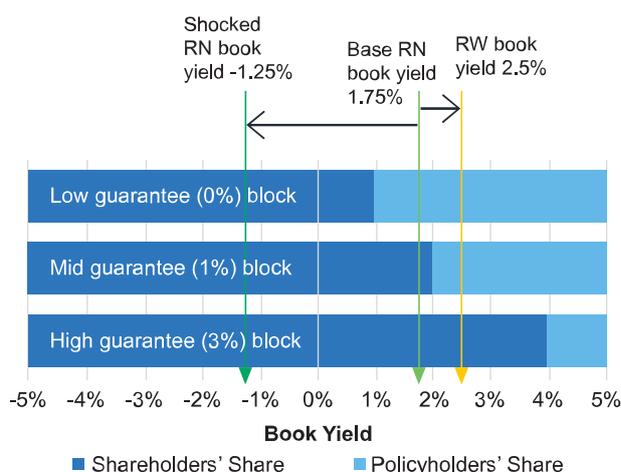
The situation is more complex when there are a variety of guarantee levels, particularly where they exist in a pooled fund sharing in the returns on a common set of assets.

We can illustrate some of the basic issues involved, considering the following simple example. Let us suppose:

- The in-force business is divided into three equal blocks, all participating business with minimum annual guarantees of 0%, 1% and 3%, respectively. The profit participation leaves a 1% per annum (p.a.) margin for the company and pays any additional book value investment return to the policyholder, i.e., the crediting rate for the policyholder is the higher of:
 - The minimum annual guaranteed rate
 - The book yield less the deduction of the 1% p.a. margin
- The current level of risk-neutral (RN) book yield is 1.75% p.a. The risk-neutral book yield will be calculated by projecting expected book yield asset returns and adjusting them to achieve market consistency. To the extent that there are unrealised gains on the assets, the yield may exceed the current risk-free rate.
- The current level of investment in "risky assets" comes from a corporate bond exposure which is expected to give an additional gross real-world return of 0.75% and to result in a gross SCR shock of 3% (expressed as a reduction in investment returns per year).¹⁴ This shock will allow for the extent to which a one-off reduction in asset values can be spread over a number of years through the projection of book yields. Superficially we could conclude that the risk/return trade-off is rather attractive because we achieve a 0.75% uplift by deploying only 3% of capital. As we shall see, the situation is more complex than that.

To calculate which part of the real-world uplift will go to the shareholders we therefore need to consider the impact of the profit participation formula of an increase in book yield from 1.75% to 2.5%. To determine the amount of LACTP, we need to consider a reduction in the book yield from 1.75% to -1.25%. The impact these calculations have is illustrated in Figure 2.

FIGURE 2: IMPACT OF REAL-WORLD UPLIFT AND SCR SHOCK

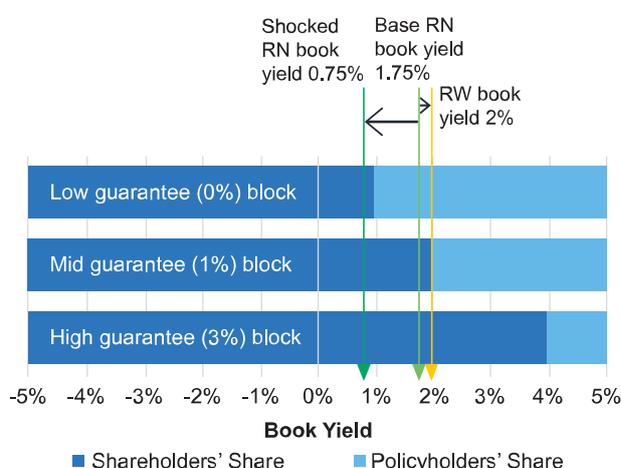


¹⁴ This is expressed as a percentage of the assets which are considered to be equal to the liabilities for the purpose of this illustrative example.

The increase in real-world book yield is passed on entirely to the policyholders for the 0% guarantee business, two-thirds to the policyholders in the case of the 1% guarantee business, and it adds value entirely for the shareholders in the case of the 3% block. By contrast, the post-shock reduction in book yield is only partly absorbed by the policyholders for the 0% guarantee block and not at all for the 1% and 3% blocks. This means that the LACTP is quite limited, only reducing the SCR (before diversification) from 3% gross to 2.75% net. At the same time, only 44% of the real-world uplift goes to the shareholders, i.e., 0.33% of the 0.75% real-world uplift. Therefore, after considering profit participation features, the shareholders bear a much higher proportion of the capital charge than they receive of the real-world uplift.

If, however, we reduced the exposure to corporate bonds by two-thirds (de-risked case), then the size of the gross real-world uplift and gross SCR would reduce proportionately. However, the impact of profit participation features would be quite different, as shown in Figure 3, applying the same logic as above but with the real-world uplift and the SCR shock being one-third of the original amounts.

FIGURE 3: IMPACT OF LOWER REAL-WORLD UPLIFT AND SCR SHOCK



Now the real-world uplift is only going to the policyholders for the 0% guarantee business and not at all for the 1% and 3% business. Therefore, the shareholder (SH) benefits from two-thirds of the real-world uplift. At the same time, there is significant loss absorbency on the 0% guarantee business, leading to a LACTP of 25% of the gross SCR shock. Therefore, the trade-off between real-world uplift and net of LACTP cost of capital seems more favourable following the de-risking, as shown in Figure 4.

FIGURE 4: TRADE-OFF BETWEEN REAL-WORLD UPLIFT AND COST OF CAPITAL NET OF LACTP

	RW uplift gross p.a.	RW uplift for SH p.a.	% of RW uplift for SH	SCR charge	SCR charge net of LACTP	Net SCR/gross SCR
Base Case	0.75%	0.33%	44%	3.00%	2.75%	92%
De-risked Case	0.25%	0.17%	67%	1.00%	0.75%	75%

Of course, the final value impact will depend on several other factors such as diversification of risks, but this example shows how much the trade-off between real-world uplifts and increased capital requirements depends on the structure of the underlying liabilities.

5.3 ILLUSTRATION OF THE IMPACT OF RE-RISKING/DE-RISKING

Having explored the issues surrounding asset de-risking and re-risking, let us now examine how the impact of an asset de-risking/re-risking strategy may be evaluated using the S2AV framework.

One of the most important areas where buyers may look to generate value is in the asset strategy of the acquired company. The liabilities of an acquired entity are predefined and can only be gradually shifted over time, e.g., through new business strategy, but the assets can sometimes be changed immediately.

A new owner may decide it can increase the value of the target company either by increasing the level of investment risk (re-risking) or by decreasing it (de-risking). There could be various reasons why the new owner might reach a different conclusion about the optimal level of investment risk than the target had prior to the acquisition. These reasons could include, for example:

- The acquirer believes they can earn higher risk-adjusted investment returns than the target does at present, due to strong investment management capabilities.
- The existing owner is constrained from holding an optimal asset allocation by some external factor such as being part of an insurance group which imposes conservative asset allocations.
- The acquirer has a different target rate of return on capital or a different risk appetite.
- Other changes being made to the risk profile of the company mean that a different asset allocation is optimal, for instance due to diversification benefit.

Note that, in practice, for a business with interdependencies between assets and liabilities, such as participating business, there may be constraints on how the asset portfolio can be invested or practical reasons why the asset allocation cannot be shifted quickly (e.g., because it would lead to realisation of gains which would trigger crediting to policyholders and hence increase the liabilities).

We consider the potential impact of re-risking or de-risking by looking at the level of “spread risk” taken on by an entity (e.g., via investment in corporate bonds).

Taking on additional spread risk will have two impacts on the valuation:

- Increased future real-world investment returns; offset by:
- Increased spread SCR risk, resulting in higher required capital, and hence higher cost of capital overall.

In our example we consider investing the assets backing the BEL in different proportions of such assets from 0% to 100%. The business being illustrated is participating, so the impact of future real-world investment returns will be offset by increased policyholder profit sharing:

- When guarantees are in-the-money, increased investment returns will go straight through to shareholders.
- When guarantees are out-of-the-money, increased investment returns will all go to policyholders (assuming a profit-sharing formula which distributes 100% of excess returns), and thus will not impact the value to shareholders (except perhaps second-order effects arising from higher liabilities).

The impact on the SCR may be able to be, at least partially, absorbed by reducing profit sharing, through the LACTP. As described above, LACTP is a feature of Solvency II whereby the stresses used are calculated first, considering the gross impact of the stress and then considering the extent to which it is offset by reductions in future participating policyholder benefits. If a reduction in participating benefits can absorb part of the SCR shock it is counted as LACTP and used to reduce the SCR. Thus, the gross SCR spread is calculated under the SII standard formula by considering predefined shocks to the value of fixed interest assets like corporate bonds. To calculate the LACTP, it should be determined how much the reductions in asset values (and consequent lower future book yields¹⁵) are expected to reduce the component of the BEL which relates to profit participation. A fuller description of the LACTP is beyond the scope of this paper, but the general concept is important to understand when management actions are considered.

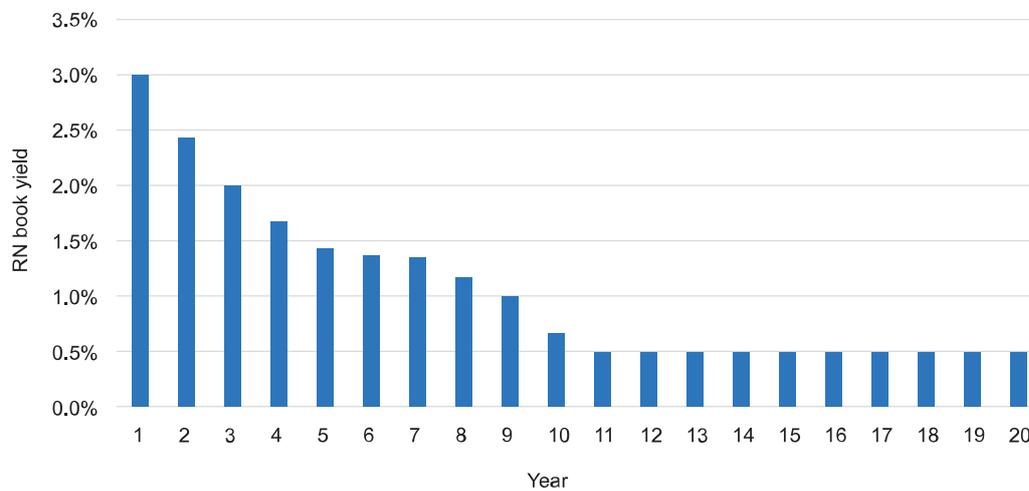
The following example is based on these assumptions:

- Risk-free rate: 0.5% p.a.
- Real-world uplift on spread assets: 3% p.a.
- Spread assets are assumed to be corporate bonds with a credit quality step of 2 for SCR purposes.
- Policyholder benefits based on: Guarantee of 1% p.a., financial margin of 1% p.a., 100% profit sharing on excess book returns. In other words, the policyholders’ benefits will increase each year by the greater of:
 - 1% (the minimum guarantee)
 - The earned book return less the 1% financial margin for the company

¹⁵ Assuming profit sharing is based on book yields as is the case in many European markets

Note that, in our example, profit sharing is driven by book value returns. A level of unrealised gains is included, which is assumed to run off over 10 years, increasing book value returns in the early years. Once they have run out, risk-neutral returns revert to the risk-free rate as shown in the graph in Figure 5.

FIGURE 5: RISK-NEUTRAL BOOK YIELDS



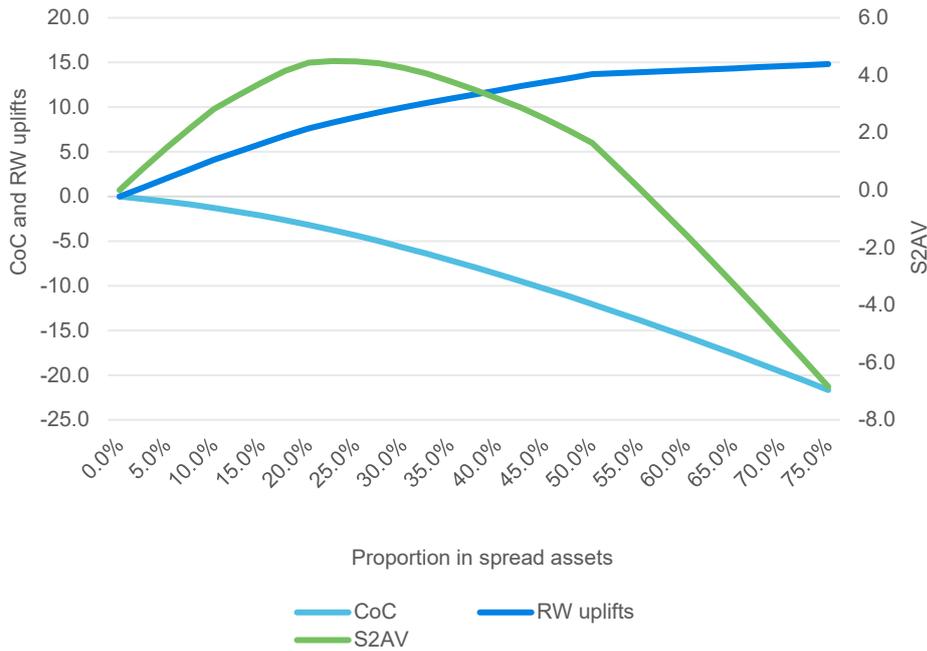
In the first three years there is the potential for LACTP, as guarantees are out-of-the-money (risk-free returns above 2%). After the first three years there is the potential for real-world uplifts to benefit shareholders, as guarantees are in-the-money.

A level of SCR lapse risk is also assumed.

As can be seen in the graph in Figure 6, as the proportion of spread assets increases:

- The impact of real-world returns increases until the proportion reaches 50%, at which point the guarantees from years 11 to 20 are in-the-money (real-world returns 2%), and any further increases pass directly to policyholders. Thus, additional real-world returns have only a second-order impact on the valuation.
- The cost of capital increases more steeply, for two reasons:
 - Diversification benefit is diminishing as market risk becomes larger relative to other risks (in this case lapse risk).
 - The potential for LACTP decreasing as post-shock yields bring guarantees into the money in more of the projection years.

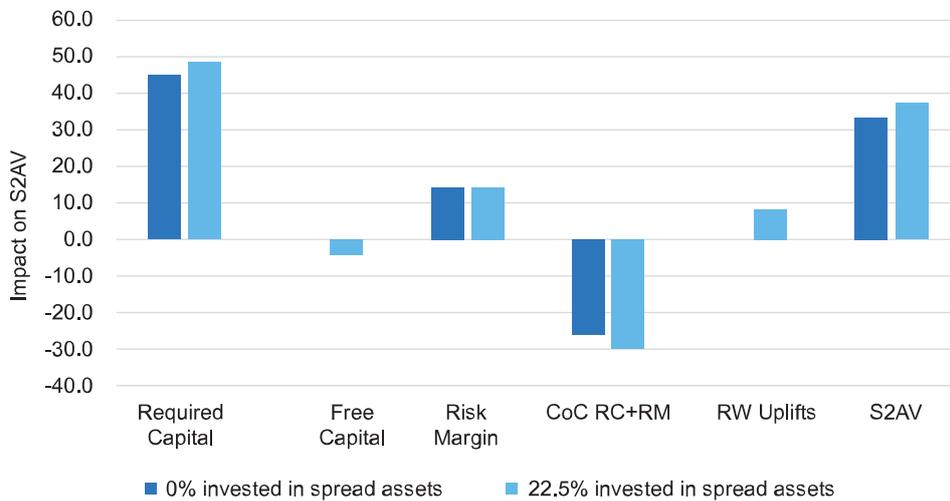
FIGURE 6: IMPACT OF INVESTING IN DIFFERENT PROPORTIONS OF SPREAD ASSETS



This shows, therefore, an optimal level of investment in spread assets (in this case, around 22.5%).

If we consider moving from 0% investment in spread risk assets, to an “optimal” 22.5%, we see the impact on S2AV broken down as shown in Figure 7.

FIGURE 7: IMPACT OF INVESTING IN AN OPTIMAL PROPORTION OF SPREAD ASSETS



The required capital increases (due to the increase in the SCR arising from investment in spread risk assets), meaning that the free capital reduces, although the total OF (required capital plus free capital) remains unchanged. This results in a higher cost of holding the required capital.

However, this is more than compensated by the real-world uplifts. The resulting increase in S2AV is around 14%.

Appendix 4 shows how the resulting S2AV value can also be determined by discounting projected distributable profits, or by discounting projected elements of capital generation.

6. Selection of candidate actions: Other actions

6.1 DIVERSIFICATION BENEFIT BETWEEN RISKS

Total capital requirements can be reduced by combining the risks in the target entity with a different mix of risks in the acquiring entity, thus achieving a total capital requirement which is less than the sum of the capital requirements for the two entities separately. This benefit arises because of the diversification benefits between different risks (which arises through the use of correlation matrices under the Solvency II standard formula, which is the regime we have assumed to apply in these examples).

In particular, following an acquisition in which the two entities are subsequently merged, a diversification benefit is achieved which is not available to two independent entities, where capital in one entity is not available to support risks in the other. The impact of this can be readily assessed, driven by the expected impact on the capital requirement of the resulting merged entity compared with the two entities separately.

For this purpose we consider an acquiring entity (A) and a target entity (T). Both have the same fixed liability cash flows, with a future projection period of 20 years. Details are given in Appendix 1.

A and T are assumed, however, to bear different mixes of risks, with initial values shown in the table in Figure 8.

FIGURE 8: INITIAL SCR VALUES

Entity	Market SCR		Life underwriting SCR	
	Spread	Equity	Lapse Up	Mortality
A	25	0	25	0
T	0	25	0	25

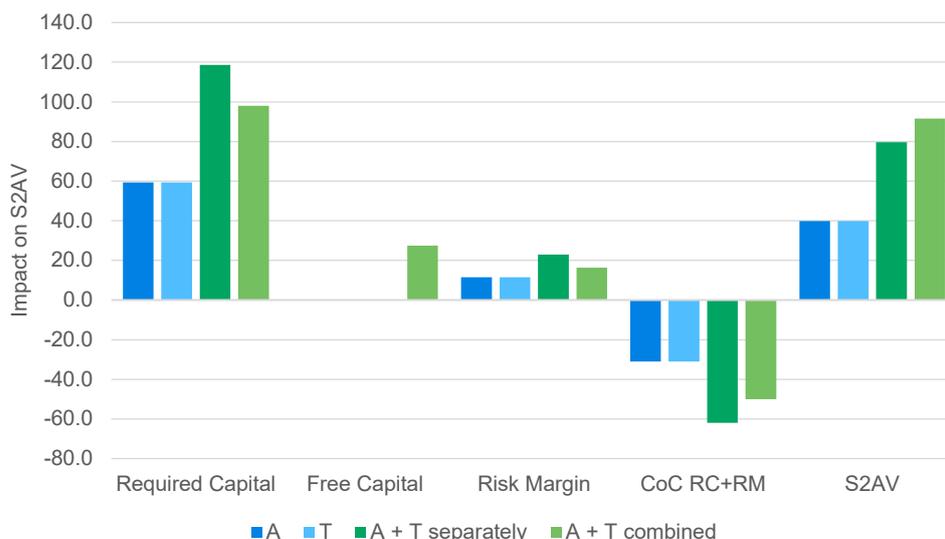
In summary, A is exposed to spread and “lapse up” risk, while T is exposed to equity and mortality risk.

Due to the combination, the initial required capital is reduced by around 17%, with the initial risk margin reduced by around 29%, creating free capital of around 27 (20.6 reduction in required capital and 6.7 reduction in risk margin).

The graphs in this example (Figure 9) and those below show the impact on the valuation (i.e., S2AV and its component building blocks), for the entities A (acquirer) and T (target):

- Separately
- Summed (i.e., the valuation assuming no combination of the entities)
- Combined

FIGURE 9: IMPACT OF DIVERSIFICATION BENEFIT BETWEEN RISKS FROM COMBINING ENTITIES



In this example, the combined S2AV is around 15% higher than the sum of the two standalone values.

We note that, taking on risks dissimilar to those already present for the acquiring company would need to be within the company's risk appetite. Furthermore, the acquirer would need to ensure that it has, or can gain, suitable expertise for managing the unfamiliar risks being taken on.

6.2 OFFSETTING RISKS

Even greater benefits can potentially be obtained by combining entities which have offsetting risks, as noted in Section 3.2 above.

The following example is the same as that above, but with:

- A exposed to SCR lapse risk up only (initial value 50)
- T exposed to SCR lapse down risk only (initial value 50)

We assume that all policies in entity A are exposed to lapse up risk only, and all policies in entity T are exposed to lapse down risk only. This could happen, for example, when the policies in entity A are profitable unit-linked policies for which material value is expected to emerge due to future asset management fees, meaning that higher lapses would lead to a reduction in own funds, whereas in entity T we might have participating business with heavily in-the-money guarantees, meaning that a reduction in lapses would lead to a reduction in own funds.

In the combined entity only one lapse risk will be the biting one for the purposes of determining the capital requirements, and thus there is again a reduction in required capital and risk margin in the combined entity, to the level of that applicable for either of the single entities. However, under the own risk and solvency assessment (ORSA), the company may deem that allowing for such an offset is not appropriate.

The resulting increase in value is shown in the graph in Figure 10.

FIGURE 10: IMPACT OF OFFSETTING RISKS FROM COMBINING ENTITIES



In this example, the combined S2AV is around 38% higher than the sum of the two standalone values.

6.3 OPTIMISING LACDT

The loss-absorbing capacity of deferred taxes (LACDT) allows, in certain circumstances, a reduction in the SCR (and hence required capital) corresponding to a change in the value of deferred taxes resulting from a loss corresponding to the SCR before allowance for the LACDT. For simplicity we will assume that the level of the LACDT is limited to the total deferred tax liability (DTL) on the balance sheet of a particular entity.

Consider the previous examples, but where:

- Both entities A and T are exposed to SCR lapse up risk only (initial value 50)
- Entity A has a DTL of 30 (with the DTL running off in line with the BEL); entity T has a DTL of 0
- The tax rate is 30%

We are assuming that the projected future runoff of DTL does not contribute to capital generation (i.e., would correspond to actual tax payments made).

The table in Figure 11 shows the makeup of the SCR in each case.

FIGURE 11: MAKEUP OF SCR

	DTL	SCR before LACDT	LACDT	SCR net of LACDT
A	-30	50	-15	35
T	0	50	0	50
A + T combined	-30	100	-30	70

- DTL is shown as negative, for ease of comparison with the negative impact of the LACDT.
- Combining the entities allows the excess DTL in entity A to be utilised to support the LACDT in the combined entity.
- Prior to the acquisition no LACDT is possible for entity T, due to zero DTL.

We note that the LACDT does not impact the risk margin, which therefore remains unchanged.

The impact on the valuation is thus as shown in the graph in Figure 12.

FIGURE 12: IMPACT OF OPTIMISTING LACDT FROM COMBINING ENTITIES



In this example, the combined S2AV is around 10% higher than the sum of the two standalone values.

6.4 CAPITAL TIERING STRUCTURE

Under Solvency II there are limits to which certain classes of capital are eligible to be used to cover the SCR. An example of this is the value of net deferred tax assets (DTA) on the Solvency II balance sheet, which classify as Tier 3 basic own funds. No more than 15% of the SCR can be covered by Tier 3 items, and therefore excess DTA can be a source of capital inefficiency.

If we take a case where:

- The risk profiles of A and T are the same (so there is no diversification benefit from putting the two entities together)
- A has excess DTA (above the 15% eligibility limit), whereas T has none

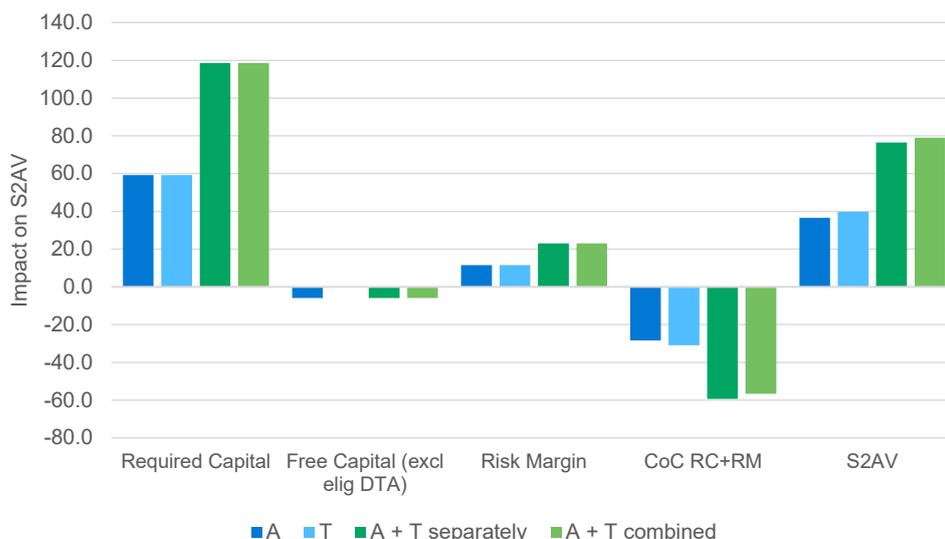
then we get the situation shown in the table in Figure 13.

FIGURE 13: REQUIRED CAPITAL AND DTA

	Required capital	Eligible DTA	Remaining required capital to cover
A	59	-6	53
T	59	0	59
A + T Combined	119	-12	107

This leads to an impact on the valuation shown in the graph in Figure 14.

FIGURE 14: IMPACT OF UTILISING EXCESS DTA FROM COMBINING ENTITIES



Thus:

- There is no change in required capital and risk margin (as no diversification benefit).
- However, being able to utilise unused DTA in the combined entity reduces the cost of capital.
- This results in an increase in S2AV of around 3% (compared to the sum of the two standalone values).

Note that we exclude the face value of the DTA from the above valuation (so that the OF shown above excludes DTA, and is thus just Tier 1 capital). This does not distort the picture, because we assume that the total DTA is the same before and after the transaction, and it is just its level of eligibility in covering the SCR which changes.

It is worth pointing out that just because DTA is not eligible capital from a Solvency II point of view does not necessarily mean that it has no economic value. It may be that DTA is ineligible, but there is still a high chance of it being eventually recoverable (e.g., it could apply if a company had suffered heavy tax losses but was very profitable going forward). The evolution of the DTA eligibility could be allowed for in the valuation.

6.5 EXPENSE SYNERGIES

Expense synergies are one of the most obvious places to look for ways to create value in M&A situations. In general, markets tend to have higher confidence in expense synergies than revenue synergies because the likelihood of their being realised is higher. The approach to assessing the absolute size of expense synergies is beyond the scope of this paper and we will instead focus on the approach to assessing the value of a given level of expense synergy and, in particular, on illustrating how important it is to do this in a technically correct way in modern financial reporting regimes if the value is to be correctly assessed.

Typically, projected expense savings involve:

1. Some sort of additional up-front costs like redundancy payments or the cost of systems migration.
2. Lower projected ongoing costs due to low payroll or lower costs of maintaining fewer IT systems following the migration.

In the old Solvency I world, buyers would typically simply look at the net present value at the shareholders risk discount rate of the expense savings less the up-front costs. However, in a reporting regime like Solvency II, expense savings will impact capital generation in several ways and a simplified approach can materially misstate the value impact. In particular, the overall impact will be made up of:

- A reduction in BEL and hence an increase in initial own funds equal to the net present value at the risk-free rate of the expense savings (insofar as they relate to maintenance costs).
- A reduction in the capital requirement from the expense SCR sub-module of the life underwriting SCR, and hence a reduction in overall required capital.

- A consequent reduction in the risk margin and hence an increase in own funds due to the reduced SCR for non-hedgeable risks.
- Improved value of future new business, due to lower costs.
- Less additional up-front costs.

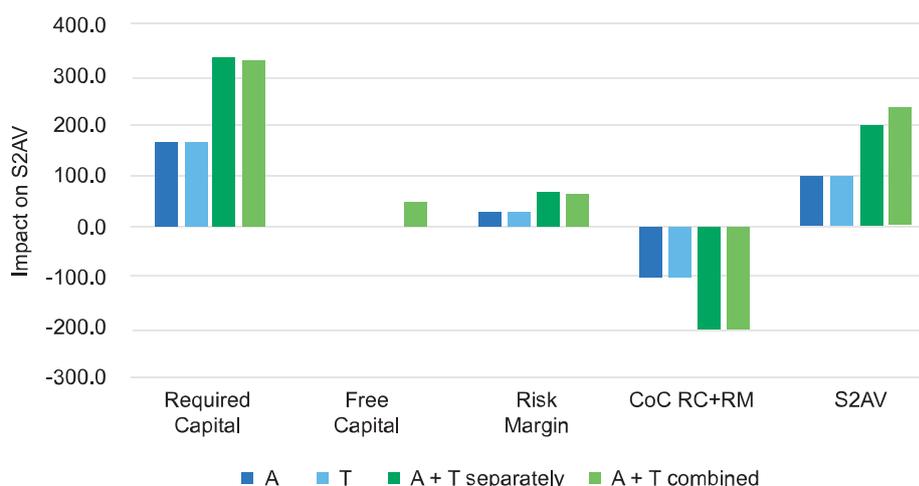
If the shareholders' risk discount rate is materially higher than the risk-free rate (which typically it is) then the impact of expense savings assessed like this may be much higher than using an old-style Solvency I approach.

For example, suppose expenses are €25 million per year for each entity (acquirer and target), declining as a 20-year liability portfolio runs off, and that we expect to be able to make a 20% expense saving per year, so reducing total annual costs from €50m to €40m. Suppose additionally that we have an up-front cost to make these savings equivalent to 140% of one year's expense (so €70m). Suppose also that the acquirer's required return on capital is 12% p.a., required capital is 125% of SCR, and that there is no future new business.

Using an old-style Solvency I approach, as defined above, the value impact of the expense savings is negative, at –€14m, i.e., the additional up-front costs do not quite pay for the value of the projected future increases in profit (due to the impact of discounting).

However, considering Solvency II distributable profits discounted at 12% p.a., we have an increase in value of €41m. The much more positive impact primarily arises because we are able to capitalise the expense savings at the risk-free rate in a reduction in the BEL and hence an increase in own funds, but with also a benefit from reduced risk margin and reduced SCR. The overall position is shown graphically in Figure 15.

FIGURE 15: IMPACT OF EXPENSE SAVINGS FROM COMBINING ENTITIES



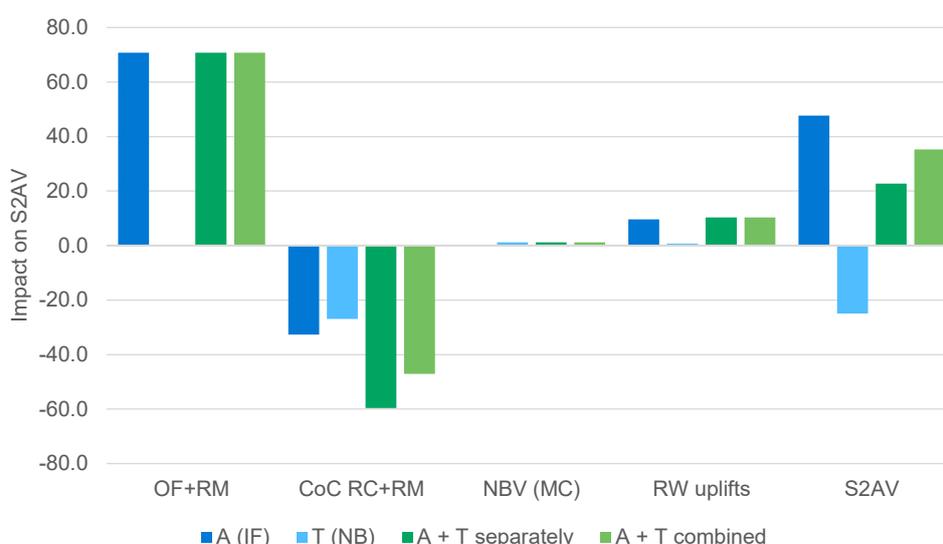
6.6 NEW BUSINESS STRATEGIES – SCR DIVERSIFICATION

We now consider a situation where:

- Entity A has in-force business only (i.e., is a “back book”-only entity), with exposure to spread and lapse up risks.
- Entity T has future new business only (so no back book), with exposure to interest rate and mortality risks only. (Of course, T would normally also have some in-force business, but we have assumed it does not to simplify the example.)
- We also consider future real-world uplifts.

The graph in Figure 16 shows the impact.

FIGURE 16: IMPACT OF COMBINING ENTITIES WITH ONLY IN-FORCE BUSINESS AND NEW BUSINESS RESPECTIVELY



In particular, this shows the difference, due to diversification benefits, in the cost of required capital and risk margin between summing the two entities separately and considering them together as a combined entity.

Note that:

- New business value on a market-consistent basis (NBV (MC)) represents the net present value at the shareholders' required rate of return of the future projected market-consistent new business value at point of sale from each future year of new business, excluding any allowance for cost of capital (i.e., effectively the OF + RM added by the new business at point of sale).
- The cost of required capital and the risk margin, together with the real-world uplifts, take into account future new business where relevant.

In this example, the resulting combined S2AV is roughly 55% higher than the sum of the two standalone values.

7. Conclusion: Scope to find value if you know where to look for it

7.1 SOME TIPS ON HOW TO SEARCH FOR OPPORTUNITIES

As we have shown, there can be many different potential areas where value can be added by potential acquirers in insurance M&A situations.

We typically encounter two types of situations in M&A projects, with scope for some mix of the two to apply in some cases.

Firstly, we can have cases where the potential acquirer already has a very clear idea on the types of actions it wants to implement in order to add value to its bid for the target. For example, they could believe that there is clear value to be added by re-risking the asset portfolio, increasing the level of returns in such a way that more than compensates for the increased cost of capital. In this case our work tends to focus on the assessment of the feasibility of implementing the targeted management action, identifying any practical or regulatory barriers, and on quantifying the additional value generated by the management action.

In other cases, a potential acquirer may be interested in a target from a higher-level strategic point of view (e.g., "we are looking at acquisition targets in the XYZ life market"), but does not have a clear idea how it might be able to add value to its bid. In this case, our work becomes more investigative and creative and involves trying to assess which management actions might have scope to add value to the target. Usually, we can narrow down what might be promising areas for actions fairly quickly using largely qualitative approaches and then focus on a more in-depth analysis of the most promising candidate areas, including quantitative assessments of potential impacts on value.

7.2 HOW VALUE IMPACTS MIGHT BE QUANTIFIED

In real life M&A situations (excuse the pun—this technique could equally be used for non-life and health insurers!), we are faced with the challenge of how to calculate or estimate the impact of management actions in a meaningful way. Often time is limited, and information may be scarce. Typically, M&A processes can involve two phases, one in which quite limited information is available (e.g., an information memorandum containing high-level and summarised actuarial, financial and solvency information), and a second in which more detail is provided, including a full actuarial report containing details of assumptions, products and solvency calculations, often together with projected cash flows and access to a data room. In some cases, potential acquirers may also want to assess targets (before they come on the market) based on entirely public information such as the Solvency and Financial Condition Report (SFCR), which companies in the EU are obliged to publish every year and which contains useful information in a standardised format.

Even with limited information it is still possible to make meaningful estimates of value using the approach we have described in this paper and then to estimate the impact of management actions on this valuation. These estimates can be improved and refined as and when more information becomes available.

For example, several of the calculations we might make will require an estimate of the duration of liabilities. If this is not available (from actual cash flows, for example), it can be estimated from the Solvency II risk margin and information on the SCR for non-hedgeable risks as:

- Estimate of duration of liabilities = Risk Margin / (SCR non-hedgeable risks * 6%)

The duration estimated here is effectively the discounted mean term at the risk-free rate. Based on this and the initial required capital and risk margin, we can calculate the cost of holding the required capital and the risk margin and then estimate how much they would change if changes in the risk profile led to corresponding changes in these amounts (e.g., shifting the asset allocation).

For example, the impact on gross equity SCR from an assumed increase in equity holdings would represent the amount of the increase in equity holdings multiplied by the SCR shock for equities. It would then be necessary to estimate the diversification benefit within the SCR market sub-module; if information was not available on the split of the SCR into sub-modules (not required to be shown in the SFCR) then an assumption would need to be made on this split, perhaps based on benchmark information. A further key aspect is to estimate the impact of the LACTP on the change in SCR because it can be materially distortive if it is ignored. Even if information is available on the base level of the LACTP, care will be needed because the LACTP is unlikely to be a constant proportion of SCR if the SCR changes, particularly if shocks bring guarantees into the money. Liabilities are often not homogeneous in terms of the level of guarantee. It may be possible to use public information to help estimate this effect or a split of the liabilities by guarantee level may have been provided. Once further details including cash flows are available it is likely to be possible to estimate these aspects much more accurately by doing approximate or exact sensitivity testing on the cash flows.

The impact on the risk margin could be estimated based on an estimate of the change in non-hedgeable SCR (if applicable), together with an estimation of the duration of liabilities and the cost of capital rate (currently 6%). It is then necessary to determine how the impact on initial required capital and/or the risk margin translates into the impact on the cost of capital of holding them (itself based on the shareholders' required rate of return).

It should be kept in the mind that the SCR and risk margin may not run off in proportion to the liabilities and that, if they do not, it can materially misstate the cost of capital. In particular, some SCR components (e.g., lapse, spread, expenses) will tend to be functions of the liabilities and their residual durations. Further, the risk margin itself is currently based on a 6% rate applied to future projected non-hedgeable SCR (thus also effectively incorporating a residual duration element), which will affect how quickly it runs off. Therefore, it is not uncommon to find that, for a closed book of business, the SCR and the risk margin run off more quickly than the BEL. Assuming that these items are a constant proportion of BEL may materially overstate the cost of capital.

It should be possible to estimate the expected pattern of SCR runoff for the most important stresses, particularly if cash flows for the stresses have been provided.

To estimate the value of real-world uplifts we would typically need an assumption on the expected real-world returns on different classes of assets, the change in split of assets by class due to a management action and (for business with participation features depending on investment income) the proportion of additional return which will be paid to the policyholders. The proportion to shareholders would depend on the guarantee and policyholder

participation structure of the liabilities, together with base projected book value returns if they are the drivers of such participation. This could be hard to estimate, but it may be possible to get publicly available data on the level of guarantees, and also get an idea of the levels of unrealised gains or losses which would drive book returns from accounting data.

Fuller information such as consistent real-world and risk-neutral projected cash flows and detailed liability information would allow more accurate determination of the projected impact of the real-world uplift.

New business value is sometimes available from embedded value reports, but often it won't be. In this case a simple model could be built based on publicly available information on the products sold by the target or a value might be derived using benchmarks. Once again, fuller information would usually allow a more precise calculation to be made.

When information is limited, some expert judgement is likely to be required to meet the challenges set out above, but as further information is received, more accurate estimates will be possible and more precision in valuation will be achieved. It is important to understand that simplified (or seemingly more convenient) approaches to valuation do not eliminate these uncertainties but may merely sweep them under the carpet. For example, if the VIF inherent in initial own funds is approximately equal to the initial required capital under Solvency II, we might assume that distributable profit can be obtained only from looking at accounting profits, which would be rather convenient and simple. However, if the pattern of the projected future evolution of SCR was quite different from that of the VIF runoff, then this approach could materially misstate the value. Furthermore, any potential misstatement could be magnified when we wanted to assess the impact of management actions on the business.

7.3 CONCLUSION

As we mentioned in our introduction, the role of Milliman consultants in life M&A projects has evolved significantly in recent years. We are now increasingly going beyond our traditional core roles of valuation and due diligence to carry out more strategic and investigative work to understand how to add value to potential acquisitions. This provides a key added value to potential acquirers in understanding the scope to generate value.

We believe the techniques and methodology set out in this paper will become increasingly more important for actuaries working on insurance buy-side M&A projects, and they will greatly improve the likelihood of potential acquirers being successful in ever more competitive sales processes.

Appendix 1: Background to numerical examples

The example in Section 5.3 (re-risking/de-risking) is based on liabilities of 20-year duration, with an assumed 5% p.a. lapse rates, and no other decrements.

Risk-free rates of 0.5% p.a. are assumed, with a real-world uplift on spread risk assets of 3% p.a. (thus varying proportionally with the level of spread risk assets).

Policyholder profit sharing is based on book value investment returns, with a guarantee of 1% p.a. and a fixed financial margin of 1% p.a. Investment returns in excess of the guarantee and fixed financial margin go 100% to policyholders. A level of unrealised gains is assumed at the start of the projection, so book value returns exceed risk-free returns as these gains are assumed to be realised.

Accumulated capital is paid upon lapse or maturity at the end of the 20 years.

The starting level of SCR in respect of lapse up assumed is an input into the model (rather than calculated), whereas SCR for spread risk is calculated based on the appropriate stresses.

The shareholders' required rate of return (risk discount rate) is 10% p.a., and the required capital is 150% of the calculated SCR.

The examples in Section 6 are similar to the example in Section 5.3. In particular:

6.1 DIVERSIFICATION BENEFIT BETWEEN RISKS, AND 6.2 OFFSETTING RISKS

Here we consider an acquirer and a target, both similar to the example in Section 5.3, but without real-world uplifts or unrealised gains, and with the starting levels of SCRs, as inputs in the model, given in the respective sections. The guarantee is assumed to be 0% p.a.

6.3 OPTIMISING LACDT

This is similar to the examples in Sections 6.1 and 6.2, but with the starting SCRs given in Section 6.3, and considering LACDT.

6.4 CAPITAL TIERING STRUCTURE

Both acquirer and target are similar to the acquirer in the example in Section 6.1 (both having the same SCR risk profile), but with A having excess DTA (above the 15% eligibility limit) and T having no DTA.

6.5 EXPENSE SYNERGIES

This is a different type of example from those described above. The key expense parameters are described in Section 6.5. The risk discount rate is 12% p.a. and the required capital is 125% of the assumed level of SCR. Liabilities of 20-year duration with a 7.5% p.a. decrement rate are assumed.

6.6 NEW BUSINESS STRATEGIES: DIVERSIFICATION

As noted in Section 6.6, the acquirer has only in-force business—this is similar to the acquirer in Section 6.1, but with an assumed 2% p.a. real-world uplift.

The target has only new business, which is similar to the in-force but with a 10-year duration, 6% lapse rates and with starting levels of SCR interest and SCR mortality as inputs in the model.

Appendix 2: Other considerations under S2AV

In Section 4.3 we noted various examples of issues which may require adjustments to the S2AV calculations. Such adjustments can be made with varying degrees of sophistication, as the particular situation warrants.

For example:

ADJUSTMENTS TO OWN FUNDS

They can generally be made as direct adjustments to the starting own funds in the S2AV calculation.

NEW BUSINESS VOLUMES CONSISTENT WITH SOLVENCY II CONTRACT BOUNDARIES

This particularly relates to types of long-term business which are considered “short-term” under Solvency II.

An example would be risk products with renewable premiums. In this case it would be necessary, in the determination of future new business value, to include such future recurring premiums, which are excluded under Solvency II.

UFR DRAG

UFR drag relates to the fact that the EIOPA Solvency II risk-free term structure includes, beyond the last liquid point (LLP), extrapolation of the curve (forward rates) to the ultimate forward rate (UFR). For euro currency, the LLP is set at 20 years, with convergence to the UFR over the following 40 years.

S2AV methodology assumes that future projections will occur following the risk-free curve at the valuation date (including extrapolation to the UFR); this effectively assumes that the LLP, and hence the forward rates based on extrapolation to the UFR, get closer and closer each year.

In reality, as you project from year to year, the LLP remains 20 years in the future. If we assume that the UFR represents a higher rate than the forward rates making up the earlier part of the curve, there will be a decrease in longer-term forward rates than in those implied by the yield curve at the valuation date, as you project forward from year to year. (Note that this may not necessarily be the case, in particular following changes in market rates during 2022.)

This effectively means that Solvency II technical provisions (BEL plus risk margin) will increase from year to year, due to lower discount rates, resulting in a reduction in own funds. (However, this will only impact longer-term liabilities, those over 20 years at each future time period.)

This can be allowed for in S2AV by assuming an increase in cost of capital (as additional assets need to be set aside to cover the SCR and RM, following reduction in own funds). Depending on the information available, assumptions would need to be made about the runoff of technical provisions and their outstanding duration in the future; from this the impact of decreasing long-term forward rates on discounting could be estimated as an increase in technical provisions, and hence a reduction in own funds and increased cost of capital.

In the case of participating business, there may be potential to absorb a proportion of such decreases in forward rates at each point, assuming they result in lower projected yields driving policyholder profit sharing (i.e., the liabilities will be discounted at a lower rate, but the BEL cash flows will also be lower). This absorption feature could be estimated based on information or an assumption about the level of guarantees and other features of the liabilities, which would impact profit sharing. For example, a percentage absorption factor could be determined for the increase in technical provisions at each future point, resulting in a reduction in the increased cost of capital.

The valuation should also allow for expected future changes in the UFR itself (either upwards or downwards).

The UFR for the Eurozone has fallen year on year since the introduction of Solvency II, from 4.2% and reaching 3.45% for 2022, but for the first time remaining unchanged at 3.45% for 2023.

In valuations in the past, there was an expectation of future decreases in the UFR. It is difficult to know whether the UFR will fall further, and also whether there may be changes to the LLP and/or rate of convergence to the UFR, which are related to the Solvency II 2020 review.

OTHER CONSIDERATIONS

Many of the other possible considerations can also be looked at in terms of increased cost of capital.

For example, constraints limiting maximum dividend distributions to statutory profits could be allowed for by an increase in the cost of capital through an increase in the target solvency ratio. This increase could be made in an approximate way via a single increased target ratio across all years, or something more sophisticated based on the known constraints.

For certain adjustments to the risk-free curve (such as the Volatility Adjustment or Matching Adjustment) it should be ensured that any “real-world uplift” doesn’t double-count the adjustment already included in the risk-free curve.

For transitional measures, which represent a temporary reduction in technical provisions, the gradual phasing out of this reduction under Solvency II will need to be captured. One option is to consider additional capital inflows, required over the phasing-in period, with associated cost of capital.

Appendix 3: Impact on S2AV of reducing required capital or risk margin

If a management action results in an initial reduction in required capital, so that an additional dividend can be paid immediately, the impact on the valuation is expressed as a reduction in the cost of holding required capital.

For example, suppose we have initial OF of 100 and initial required capital of 100, with cost of required capital = 30% of its initial value, and no risk margin. This gives a valuation of $OF - CoC_{RC} = 100 - 30 = 70$.

If a management action means that initial required capital reduces to 80, OF are still 100, but now consist of the required capital of 80 and a “free capital” of 20. The free capital has no cost of capital associated with it as it is assumed to be released immediately as a dividend, whereas the required capital now has a cost of 24. The valuation is now, therefore: $100 - 24 = 76$.

The case of a management action resulting in an initial reduction in risk margin (with no impact on overall required capital) can be illustrated in the following example:

Consider the previous example, but now with an initial risk margin of 40, and with cost of capital associated with risk margin = 20% of its initial value. Therefore, the valuation is $OF - CoC_{RC} + RM - CoC_{RM} = 100 - 30 + 40 - 8 = 102$.

If a management action means that the initial risk margin reduces to 30, with no impact on required capital, this means that initial OF increases to 110, creating free capital of 10 which can be released immediately (rather than being tied up to cover the risk margin), and thus has zero cost. The risk margin therefore now has a cost of 6, so that the valuation becomes: $110 - 30 + 30 - 6 = 104$.

Thus, again, the impact on the valuation of a reduction in risk margin is a reduction in the cost of capital associated with holding the risk margin.

The converse is true in respect of increases in required capital or risk margin.

In our valuation methodology we assume that required capital and risk margin are ultimately released into distributable profits as they run off. The only question is that of timing, which impacts the cost of capital.

Appendix 4: Reconciliation of Section 5.3 example using the three different approaches

As noted in Section 4.2, it is possible to show that the following approaches give the same result:

- Projection of distributable profits, based on projected excess of OF over required capital, discounted at the shareholders’ required rate of return.
- Projection of distributable profits, expressed as the sum of capital generation items, discounted at the shareholders’ required rate of return.
- S2AV view (starting with initial OF).

Typically, when considering Solvency II and S2AV, the future capital generation items will include:

- Runoff of required capital (as liabilities and risks run off).
- Runoff of risk margin (as liabilities and risks run off).
- Investment returns on required capital and risk margin.
- Impact of real-world uplifts.
- Impact of future new business.

In this section we demonstrate this equality for the re-risking/de-risking example in Section 5.3 (noting, however, that this doesn't include future new business).

RE-RISKING/DE-RISKING EXAMPLE

If we consider the situation with the "optimal" level of investment in spread assets of 22.5% we have the situation shown in Figure 17.

FIGURE 17: S2AV

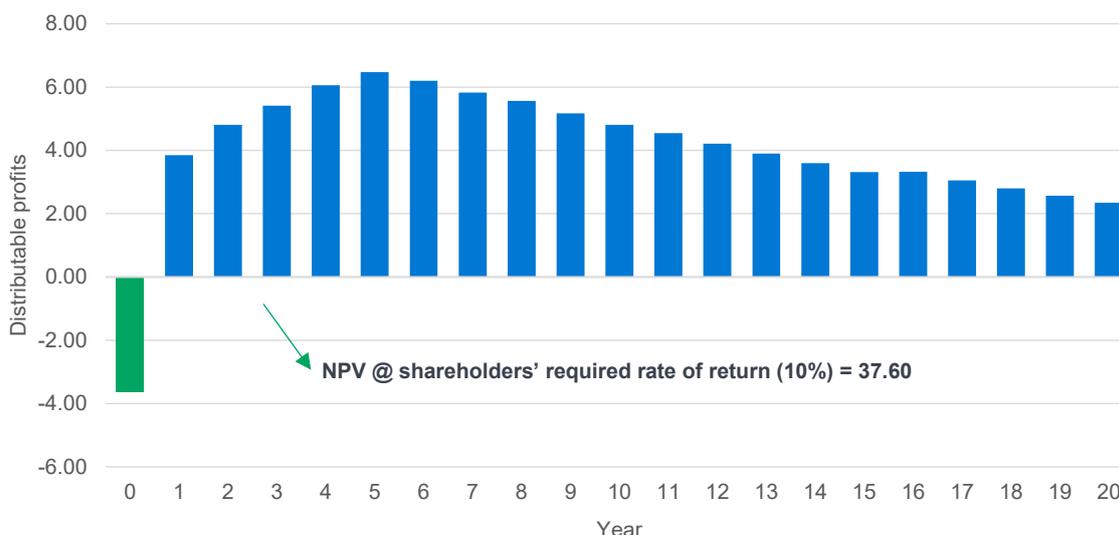
Initial Own Funds (< Required Capital)	45.00
Initial Risk Margin	14.18
CoC from Holding Required Capital	-24.22
CoC from Holding Risk Margin	-5.62
Real-World Uplift	8.25
Total S2AV	37.60

Initial own funds breaks down into initial required capital of 48.64 and free capital of -3.64. There is a negative initial free capital because in our example the level of investment risk has been increased, leading to a higher level of SCR than had existed before this change in asset allocation.

It therefore implies that an initial capital injection of 3.64 is required. However, in this optimal case, the level of additional projected capital generation more than compensates for the cost of this capital injection at the shareholders' required rate of return.

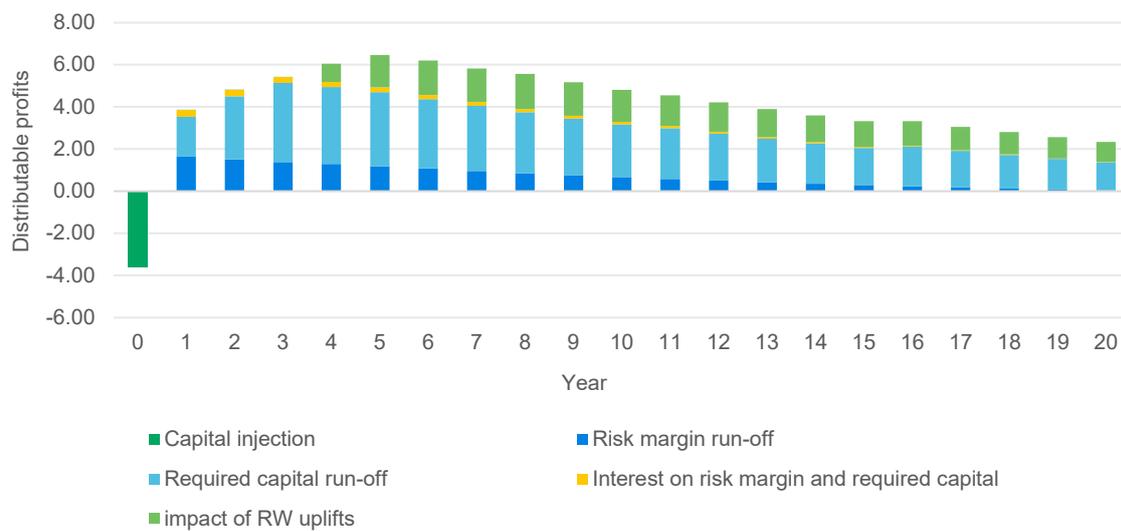
We can show projected distributable profits (dividends), as seen in Figure 18, which discount back to the same value.

FIGURE 18: PROJECTED DISTRIBUTABLE PROFITS



Further, the distributable profits can be broken down into the elements of capital generation, as shown in Figure 19.

FIGURE 19: PROJECTED CAPITAL GENERATION



We note that the impact of real-world uplifts only applies from year 4 onwards. This is because of the pattern of risk-neutral book yields (see the table of yields in Figure 5 in Section 5.3), which are greater than 2% in the first three years, meaning that guarantees are out-of-the-money in those years, so that any additional returns go to the policyholders.



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