ALM Metrics Survey 2020

November 2020

Milliman

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Introduction

There has been, in recent years, a trend towards increasing sophistication in approaches of life insurers to asset liability management (ALM), and within that the derivation of strategic asset allocation (SAA), in part in conjunction with a move towards more economic value and risk-based solvency regulation.

These regulatory regimes include Solvency II for insurers in Europe (since 2016), the risk-based capital (RBC) regime for insurers in Japan (since 1996) with a planned move to a full economic value-based solvency regime (expected in 2025), RBC in Singapore (since 2004 and enhanced in 2020 with RBC2), and a similar RBC regime to be implemented in Hong Kong (targeted for 2024).[1] More globally there is the introduction of Insurance Capital Standards by the International Association of Insurance Supervisors (IAIS).

However, we believe that there is still room for capturing and enhancing international best practice in setting ALM metrics. Furthermore, the current economic environment of low rates, and the recent market volatility associated with COVID-19, have created pressure on companies to optimise their ALM approaches.

The purpose of this year's ALM Metrics Survey (the Survey) is to understand the current international practice in a variety of representative markets in terms of the approaches and the metrics used in ALM by global life insurers; and to discuss what might be considered best practice and how this might evolve in future.

APPROACH TO SURVEY AND SCOPE

Our intention was to make the benchmarking analysis as international as possible. However, in order to improve the comparability, we focused on selected key countries in Europe and Asia using, or planning to introduce, economic value and risk-based regimes, and where there is a well-established practice on ALM.

We have also taken a different approach here than to traditional surveys. Our focus is on comparing international best practice, and practice across different countries, rather than the particular idiosyncrasies of individual companies. Therefore, Milliman consultants have consolidated the survey results within a given country to ensure the presented results are representative of typical approaches adopted in that country. The aim is that the final presented results provide a balanced view of the general practice across our selected markets, while still reflecting variations within each market.

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[1] The July 2020 Milliman Research Report Life insurance capital regimes in Asia, 2nd edition gives more detail on regulatory developments across Asia.

Executive summary of key findings

Through this survey, we have considered international best practice in a number of key areas within ALM, as well as its link with other aspects of insurance companies' management of their risk and business performance.

Our key findings can be summarised as follows:

OVERALL AIMS AND METRICS

Companies typically focus on four to five key aims and metrics for their ALM and asset allocations.

The most common include maximising earnings for a given level of risk, economic value added, risk reduction, and matching of asset and liability cashflows.

Companies often suggested that regulatory capital impact acts as more of a constraint than an objective. Indeed the most common issue highlighted with use of ALM metrics was the misalignment between an economic view and the regulatory and/or accounting view of risk and return.

A move towards more economic value and risk-based regulatory and accounting approaches might better align companies' internal economic views with their regulatory reporting. But even in regimes such as Solvency II that are ostensibly market-consistent and risk-based, insurers report a misalignment between the regulatory capital position and their own economic views.

LINKING ALM WITH OVERALL KEY PERFORMANCE INDICATORS AND RISK METRICS FOR THE BUSINESS

Companies typically use a wide range of Key Performance Indicators (KPIs) for managing their business. Company-wide measures of risk appetite are most commonly linked to volatility of economic or solvency capital.

Where relevant, KPIs are often explicitly linked to the choice of ALM metric, although a number of companies remarked that improving links between ALM metrics and KPIs was an important area for further development.

We also observed (see 'Groups' below) that this link is usually less clear within insurance groups, where KPIs are typically set at Group level but ALM optimisation is performed in individual entities.

APPROACH TO ALM

Typically, companies stated that ALM and SAA policy is driven directly by the optimisation of key metrics.

However, in our experience, ad-hoc approaches—first making a decision, and then validating that it meets the desired metrics—may be used more widely than that being indicated in our survey. We see this particularly where significant strategic decisions are made impacting ALM, for example a decision to invest in a new market or asset class.

Companies also typically used an efficient frontier approach with a trade-off between a measure of return (e.g., expected earnings) and a measure of risk (e.g., capital volatility).

As an alternative, metrics such as economic value added can capture return and risk dimensions in a single metric by allowing for the cost of capital as a deduction from returns. Milliman has developed an approach of Solvency II Appraisal Value (SII-AV), which can be used for business decisions such as Mergers & Acquisitions. For investment this would include both:

- The uplift in shareholder returns from investing in risky assets, <u>less</u>
- The cost of the additional capital, allowing for both regulatory capital and expected volatility, from this investment

'REAL WORLD' VERSUS 'MARKET CONSISTENT'

ALM typically involves 'real world' measures of return, but measures of risk may be 'market consistent', although the use of 'illiquidity premiums' can blur the distinction between the two approaches.

Ideally economic scenario generators will allow insurers to generate both market-consistent and real world scenarios within the same framework, such as Milliman's award-winning CHESS.

MODELLING APPROACHES

Best practice is typically to use stochastic modelling.

Stochastic approaches are particularly important in the presence of guarantees and policyholder profit participation (see 'Policyholder Perspective' below).

However, to reduce run times, a deterministic approach may be used first to narrow down the range of strategies to be investigated, followed by stochastic modelling on the selected subset of options.

A number of respondents noted that their ability to perform ALM optimisations was constrained by modelling capabilities and resources.

The increased stakeholder focus on more frequent monitoring of solvency and recalibration of models (see 'Frequency of revisiting ALM studies' below) has also increased the need for insurers to improve their technological solutions to allow more rapid calculations to be performed. For solvency monitoring we have seen two approaches to improve speed:

- Increased processing power (e.g., use of Cloud computing, such as in Milliman's own Cloud Hosted Economic Scenario Simulator, CHESS), and
- Greater use of proxy models[2]

Similar developments could help insurers enhance the responsiveness of their ALM.

RISK MEASURES AND LIMITS

Risk measures used typically consider both economic volatility and regulatory capital requirements, but often separately.

A measure that combines both can be to focus on the economic downside risk to the regulatory solvency position. The use of the solvency position captures the regulatory capital that is required to be held against assets, but the risk measure captures how this ratio can reduce under stress scenarios or stochastic models calibrated to the insurer's economic view of risk. This combined measure also has the advantage of reflecting how regulatory capital requirements can change under economic stress, for example due to countercyclical buffers or procyclical effects.

We noted a relatively limited focus on liquidity risk, perhaps reflecting the relative liquidity of most insurers' assets versus their liabilities. However, in our experience the trend towards illiquid assets and greater use of derivatives has made liquidity risk constraints more pertinent and an area of increased regulatory scrutiny. Milliman has developed a liquidity management framework in response to this growing need.

The survey indicates that many insurers apply a variety of risk limits, e.g., at asset class or issuer level. However, in our view best practice is to take a more holistic view as to what drives those limits—such as liquidity constraints, limits on valuation uncertainty, and tolerance from losses from a single counterparty or event—and apply the these limits holistically rather than in an ad-hoc fashion.

IMPLEMENTATION

Once ALM studies are completed, these typically feed through into actual asset allocation via setting ranges, rather than asset allocation being entirely driven by the optimal portfolio.

This enables both a degree of pragmatism and scope for tactical asset allocation, although in our view it is important that responsibilities are clearly defined, and that permitted limits are factored into the assessment of risk exposures.

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[2] As discussed in an April 2020 paper from Milliman consultants on Proxy Model Validation.

FREQUENCY OF REVISITING ALM STUDIES

ALM strategy is most commonly revisited annually.

However more frequent reviews are typically triggered by a change in the economic/market environment, which might require models to be recalibrated, or a fall in the solvency position, which may trigger risk limits.

The volatility induced by COVID-19 has also led to an increased focus from stakeholders, including regulators, on more frequent monitoring of solvency, and, as a consequence, more frequent reviews of asset allocation.

Significant accounting and regulatory changes, or thematic regulatory reviews such as recent focus in the UK on the Prudent Person Principle, may also trigger a reassessment.

POLICYHOLDER PERSPECTIVE

Meeting policyholder expectations was commonly cited as a key overriding aim of ALM.

However, the ALM optimisation is typically driven from a shareholder perspective. Policyholder expectations are then imposed as more of a constraint. Policyholder profit participation and guarantees also need to be reflected within the stochastic modelling.

This can often add considerably to the complexity of performing ALM analyses, particularly the need for interaction between asset modelling and liability models.

Milliman's Sirius tool allows ALM models to be built in a simple way, closely approximating asset-liability interactions. This overcomes the complexity of building fully dynamic models and hence allows studies to be carried out to look in parallel at both the asset and the liability aspects of ALM questions. For example, the types of questions which could be addressed are:

- How can management rules be optimised together with SAA to maximise performance under ALM KPIs?
- How do risk mitigating features of new products (such as reduced guarantees on surrender) interact with ALM strategies?
- How can policyholder behaviour impact ALM metrics?
- What factors can influence the value of Loss Absorbing Capacity of technical provisions in reducing capital requirements?

NEW BUSINESS

Modelling typically takes account of new business over the projection period, including the ability of new business premiums inflows to fund outflows on other business.

However, some companies perform an optimisation focused on the run-off of existing business, which may be managed relatively passively, and separately consider an optimal asset allocation for the investment of new premiums. This can be particularly useful where new business premiums are material and/or with the increased focus for listed companies on reporting the economic value generated by new business.

GROUPS

We found that most ALM optimisation in Groups is performed at the company level.

Within Groups, common metrics may be applied to ensure a certain consistency of approach. But it was much less common for ALM metrics and risk limits at a company level to be directly linked to their impact on the corresponding Group metrics and Key Performance Indicators.

This company-centric approach reflects, in part, the necessary governance requirements for individual regulated entities, as well as significant differences in issues between different national markets, particularly in Europe.

Best practice therefore may be for Groups to set a Group-wide ALM/SAA policy, with minimum requirements for key metrics, assumption setting, risk limits, and modelling approaches, which is then implemented at company level.

CONCLUSION

Our survey has demonstrated a number of areas of evolving best practice in ALM and ALM metrics:

- The benefit to insurers of a greater alignment by policymakers between regulatory/accounting measures, and economic value risk-based perspectives
- Where there is a misalignment, the need for insurers to develop metrics combining both regulatory and economic perspectives, such as the economic downside risk to the regulatory solvency ratio
- Use of risk-adjusted return metrics that can combine return and volatility/capital into a single measure
- Improving modelling approaches to enable more frequent monitoring, stress testing, and recalibration in volatile markets. This includes greater use of cloud computing, economic scenario generators that combine risk-neutral and real world perspectives, and use of proxy models
- Modelling approaches that enable insurers to model the full complexity of policyholder profit participation and expectations, while enabling ALM optimisation to be performed efficiently
- Setting risk limits based on a holistic view of the key drivers of risk appetite
- An evolving focus on liquidity risk and development of liquidity risk frameworks
- Ensuring clear governance frameworks and risk limits between strategic and tactical asset allocation
- Improving links between Key Performance Indicators used to manage the overall business and ALM metrics
- For Groups, ensuring consistency of practice while respecting local governance and different local constraints
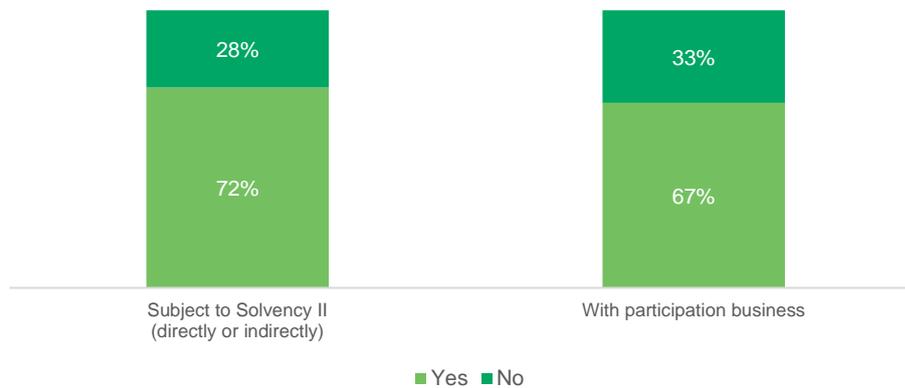
ALM Metrics Survey 2020 results

PARTICIPANT PROFILE

As discussed previously, the Survey results are representative of our consultants' interpretations of the typical practices of insurers in six selected key markets: Japan, Italy, Netherlands, France, the United Kingdom, and multi-national insurers operating across Asia. We have weighted the responses to be equal across the six markets.

The chart below shows that nearly three quarters of the survey participants are subject to Solvency II regulation, directly or indirectly (via their Group); and nearly 70% of the survey participants have profit participation business in the existing business model. For the UK we have focused on annuity providers, without profit participation, as this is the largest growth area in assets under management and hence the key focus of most ALM optimisation.

FIGURE 1: REGULATORY AND BUSINESS PROFILE OF SURVEY PARTICIPANTS

AREAS COVERED WITHIN OUR SURVEY

We identified the following 10 key ALM areas for the Survey:

- Overall goal of ALM
- Key business metrics for assessing ALM
- Link with risk appetite statement and key performance indicators (KPIs)
- ALM optimisation
- Implementation of ALM studies
- Frequency of review
- Interaction with policyholder liabilities
- Treatment of new business
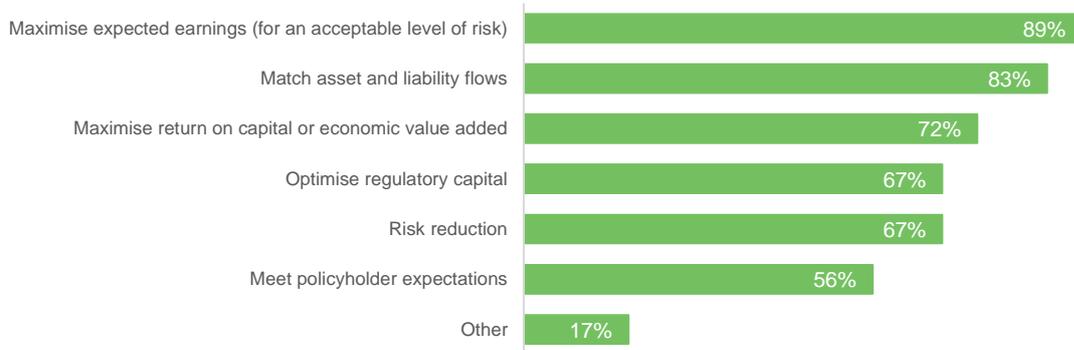- Consistency of approaches within Groups
- Other issues

The original survey can be found in the Appendix.

OVERALL GOAL OF ALM

Question 1: What are the aims of ALM?

For this question, we asked for the high-level aims or objectives set by insurers for their ALM function.

FIGURE 2: WHAT ARE THE AIMS OF ALM?

Aim	Percentage
Maximise expected earnings (for an acceptable level of risk)	89%
Match asset and liability flows	83%
Maximise return on capital or economic value added	72%
Optimise regulatory capital	67%
Risk reduction	67%
Meet policyholder expectations	56%
Other	17%

Other approaches mentioned by more than one insurer were:

- A focus on maximising the value of new business, or projected value including new business. This is typically on an embedded/economic value basis and suggests a particular focus on the asset-allocation resulting from investment of new business premiums.
- Considerations of tactical asset allocation (TAA) versus SAA, such as providing guidance on TAA and monitoring the distance between the SAA and TAA.

The most common metrics were maximising expected earnings (within risk appetite), matching asset and liability cash flows, and maximising return on capital or economic value.
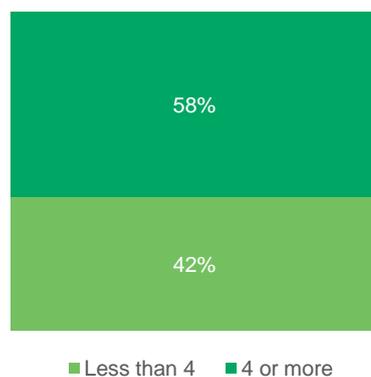
Optimising regulatory capital was a less common response, particularly where regulation is less risk based. A focus on regulatory capital is more common in insurers following the Solvency II regime; but despite this, some European insurers, notably in the Netherlands, look more to internal economic measures, given the non-market-consistent nature of aspects of Solvency II.

Risk reduction was commonly mentioned although was not typically highlighted as the primary aim of ALM.

There was a common emphasis here on meeting policyholder expectations, although as we will see in Question 7, this seems to be less reflected in the metrics chosen for optimisation.

The median number of aims considered was four.

FIGURE 3: PROPORTION OF PARTICIPANTS WITH LESS OR MORE THAN FOUR ALM AIMS

	Percentage
4 or more	58%
Less than 4	42%

■ Less than 4 ■ 4 or more

Only a minority of respondents indicated that any one particular aim was key, although where this was selected the dominant aim was maximising expected earnings for a given risk budget, or expected return on economic capital.

Overall, this suggests that the most common approach is to base ALM on a number of goals, typically around four, rather than focusing on just one.

The typical approach is to balance between generating return and economic value, versus managing risks and capital. A move towards a more economic value and risk-based regulatory approach might better align a company's internal view and their ALM approaches with their regulatory reporting.
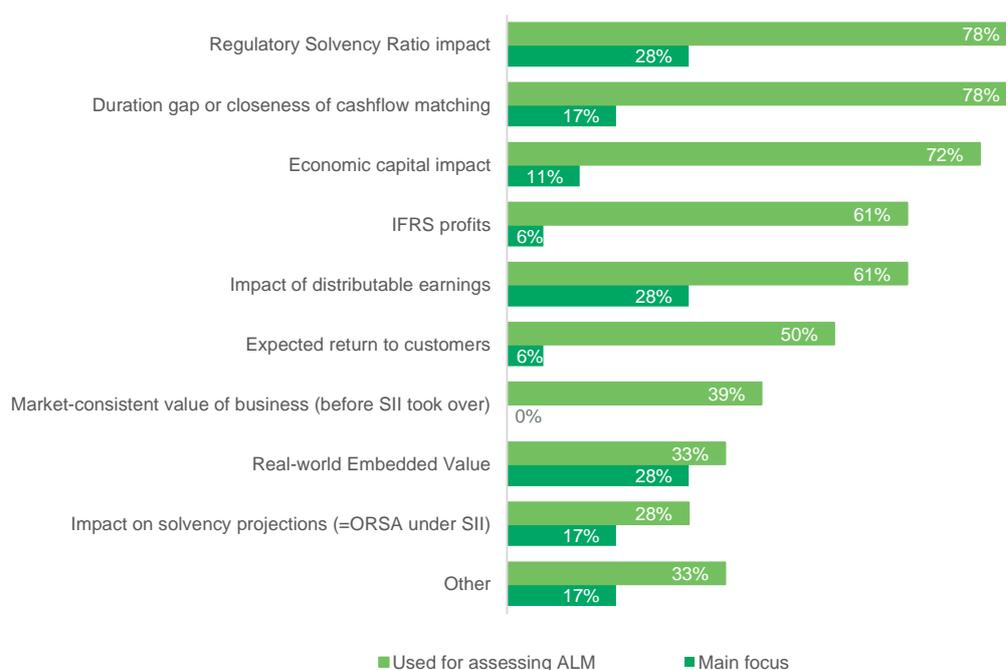
KEY BUSINESS METRICS FOR ASSESSING ALM

Question 2: What metrics are used to assess the success and impact of an ALM strategy?

For this part, we were interested in understanding if there was some level of consensus across business and regions in choosing which specific metrics to use to assess the performance of the ALM work.

The majority of the participants also indicated that a smaller subset of these metrics was the main focus for the assessment.

FIGURE 4: WHAT METRICS ARE USED TO ASSESS THE SUCCESS AND IMPACT OF AN ALM STRATEGY?

'Other' includes market consistent embedded value (MCEV), economic solvency ratio (ESR) and economic return (given an acceptable regulatory capital charge and level of market risk).

Reponses to Question 2 provide a consistent view to that from Question 1. We see that risk capital impact (on either a regulatory basis or economic basis), matching between asset and liabilities, and earning expectations are the most common choices.
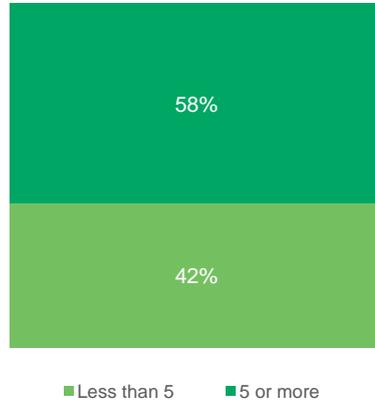
We note that most participants would assess the impact of ALM strategy on the solvency position, even though the regulatory capital position might not be a primary objective of the ALM in the first place. This implies that regulatory capital functions as more of a constraint than a key goal.

The projected solvency position—and the Own Risk and Solvency Assessment—was a relatively uncommon metric. This may reflect the significant amount of effort and time required to perform optimisations based on such projections.

Impact of distributable earnings is a key metric for many insurers, although certain participants recognised that this might be to some extent correlated with the International Financial Reporting Standards (IFRS) profits.

Again, for Question 2 we analysed the number of metrics used by each participant. The median number was five.

58%

42%

■ Less than 5   ■ 5 or more

LINK WITH RISK APPETITE STATEMENT AND KEY PERFORMANCE INDICATORS

Question 3a: What key metrics are used to define risk appetite and/or what KPIs are used to manage the business?

In this part, we were interested in learning how ALM is linked with a company's overall risk appetite statement in general, and the way the business is managed.

We observed that there were, in total, more than 20 different types of metrics and KPIs suggested by participants for the purpose of setting risk policy, defining risk appetite statement, and managing business on a day-to-day basis. This observation in part reflects that there is a large variety of business models, although some of the metrics are variants on a smaller number of themes.

As shown in the chart below, in constructing risk appetite statements, the majority of participants refer to the overall capital adequacy level measured on either an economic or a regulatory basis and its sensitivity measured by volatility or stress-testing. In addition, market risk metrics are also frequently referenced by insurers.

In the past, liquidity was not a key area of focus for insurers. However, we have observed that this situation is now changing with an increased focus from regulators on this area. This reflects how insurers have moved towards a greater use of both illiquid investments and derivatives (which may require collateralisation with liquid assets).
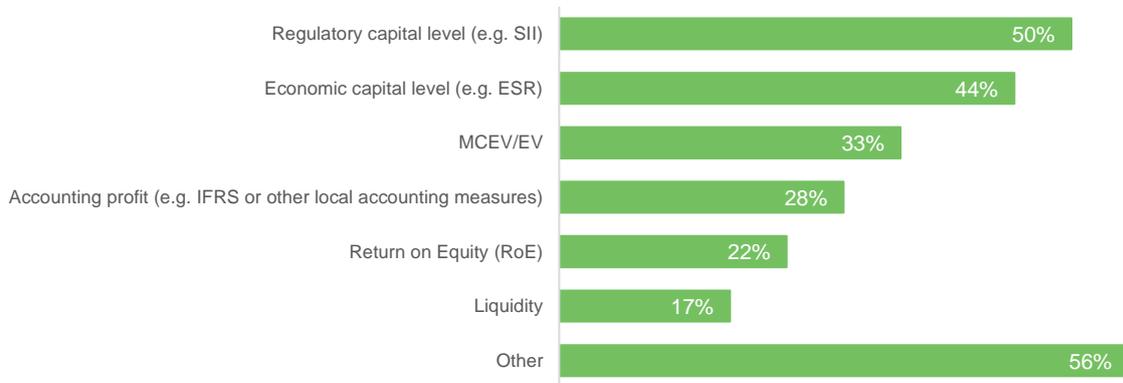
FIGURE 6: WHAT METRICS ARE USED TO DEFINE RISK APPETITE?

Metric	%
Volatility of Regulatory capital level (e.g. SII)	44%
Volatility of Economic capital level (e.g. ESR)	33%
Liquidity	33%
Market related risk (e.g. interest rate, inflation, credit, counterparty, and equity)	22%
Aggregate risk	17%
Volatility of MCEV/EV	17%
Other	33%

'Other' includes return on risk and return on embedded value and asset limits.

When considering KPIs used to manage the overall business, there is a much wider variety used, reflecting the more diverse nature of business models, although again with a clear focus on the level of either economic or regulatory capital. Some of the KPIs used for managing business more widely—e.g., sales performance—would not necessarily have a direct link to ALM metrics.

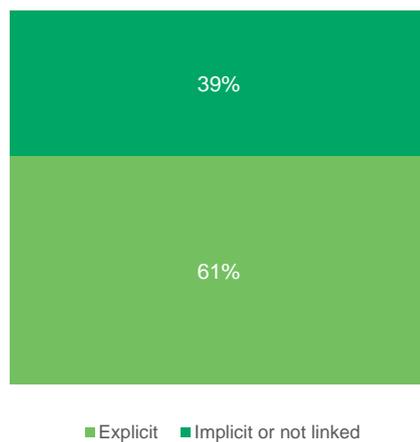**FIGURE 7: WHAT KPIS ARE USED TO MANAGE BUSINESS?**

Other metrics mentioned included: value of new business; duration gap; earnings volatility; and accounting volatility, as well as those less directly related to ALM such as brand value, sales performance, and expense overruns.

Question 3b: How do metrics/KPIs link in to ALM policy, if at all, explicitly or implicitly?

As expected, the majority of respondents have set up an explicit link between their ALM policies and both risk and business performance metrics which are used for the overall management of the business.

However, some companies, notably in France and Italy, commented that improving the link between ALM metrics and overall KPIs was an important area for further development.

FIGURE 8: HOW DO METRICS/KPIS LINK IN TO ALM POLICY, IF AT ALL, EXPLICITLY OR IMPLICITLY?

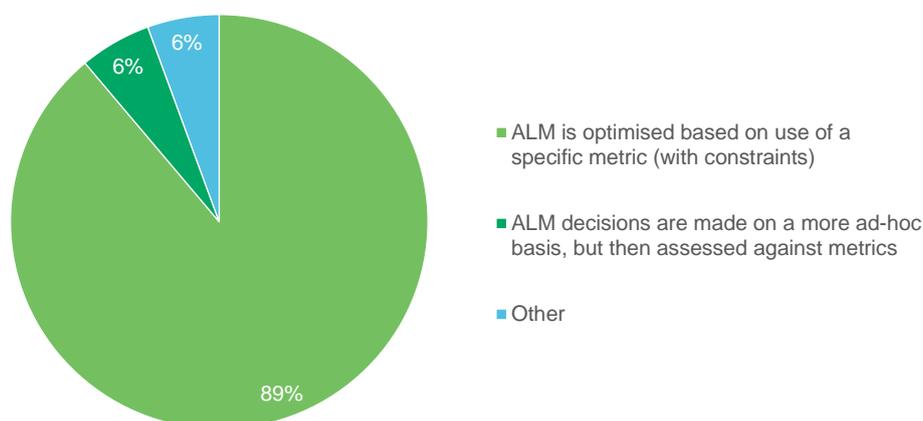■ Explicit ■ Implicit or not linked

ALM OPTIMISATION

> **Question 4a:** What approach is used for ALM optimisation?

Here we were interested in how the ALM optimisation would be performed by life insurers, in particular whether this was driven by the use of metrics.

We observed that using specific metrics (with constraints) was, by far, the most popular approach used by insurers for SAA or ALM types of analysis. This may then be followed by scenario and stress testing to further explore the resilience of the asset mix to certain economic or asset risks, such as concentration risk or risk of change in correlation.

However, in our experience, ad-hoc approaches may be used more widely than indicated in our survey where more fundamental ALM decisions are made. Often, a strategic decision is made first, for example to put in place a hedging program, or a business opportunity arises to consider a new asset class, e.g., insurers moving into direct lending or diversifying into overseas markets. Then, after this, the decision is appraised against key metrics, or by using a cut-down ALM model (e.g., a small number of stress scenarios.)

FIGURE 9: WHAT APPROACH IS USED FOR ALM OPTIMISATION?

One participant chose other approaches, as they are currently focusing on specific issues in the existing asset allocation structure, and hence the normal holistic ALM type of analysis does not apply.
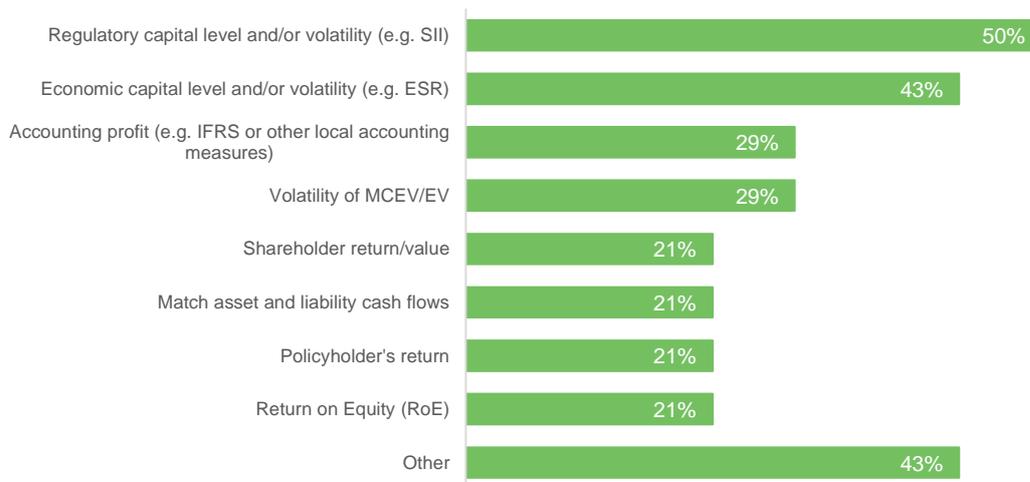
Questions 4b to 4h are only applicable to the participants who perform regular ALM analyses.

> **Question 4b:** What metrics are used?

Similar to responses provided to Question 3a, we observed a wide range of potential metrics used by insurers, as either primary or secondary metrics, in performing ALM optimisation. But again, regulatory and economic-related capital metrics are the most popular metrics used.

Notwithstanding, insurers generally would consider, where applicable, adding value from both shareholders' and policyholders' perspectives in the ALM optimisation work. Some insurers suggested that the shareholder value normally was the ultimate area of focus, whilst respecting policyholders expectations. This area is further discussed in Question 7a.

FIGURE 10: WHAT METRICS ARE USED IN THE ALM OPTIMISATION?

'Other' includes return on risk, return on embedded value, accounting capital, excess return, net return (given an SCR limit), and internal risk metrics.

Question 4c: Is there some form of efficient frontier or a single metric used for ALM optimisation?

A large majority of the participants carried out an efficient frontier type of analysis for SAA or ALM studies. This means an approach defining what it means by 'return' and 'risk' to be used in the quantitative analysis, and then essentially maximising return subject to a given level of risk, or less commonly, minimising risk subject to a given level of required return.

Return and risk metrics would typically be driven by the metrics highlighted in previous questions, such as expected earnings versus volatility of capital.

For participants implementing an efficient frontier framework, this is normally well documented in either a SAA or an ALM policy, or an investment framework.

For insurers who adopt a single metric approach, which make up less than 10% of our participants, there are two approaches.

One is to maximise a return metric from a given, constrained list of possible asset allocations, which may have been pre-set by using a risk metric.
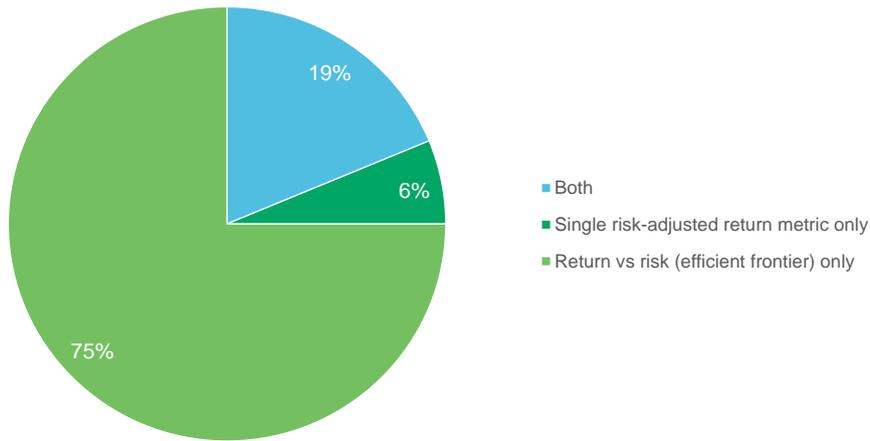
However, an alternative way of using a single metric, is to attempt to capture the return and risk trade-off in a single metric, for example:

- "Economic value added" type measures that deduct a cost of capital charge from a return measure, or
- Optimisations that select assets with the highest return per unit of risk capital

One insurer in the survey did indeed use a risk-adjusted return measure, but made the point that a risk measure was still required alongside this to reflect uncertainty, i.e., the volatility of the actual outcome. So they optimised:

- Return = expected return less cost of capital on required Solvency capital, against
- Risk = economic volatility of returns and available capital

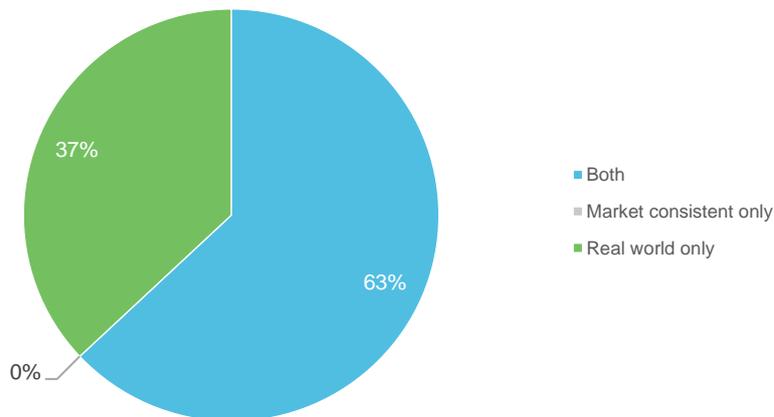**Question 4d:** Is the approach 'real world' or 'market consistent'?

Responses to this question suggested that all participants used a 'real world' approach to some extent for the ALM work. The majority indicated that they would also use a 'market consistent' approach in parallel, i.e., both approaches.

'Real world' approaches are more commonly used for measuring return, since in a fully risk-neutral world all assets yield the risk-free rate, and may be used for measuring risk.

A 'market consistent' approach was more commonly indicated as being used to reflect the risk measure in the optimisation, reflecting either a regulatory requirement (e.g., Solvency II) or an internal economic view. For listed groups, market consistent embedded value may be a key reporting metric, although increasingly in Europe this is used more to measure new business value than for existing business.

The boundary between 'real world' and 'market consistent' approaches can also be blurred when illiquidity premiums are taken into account. For example, for UK insurers, 'market consistent' yields on fixed-income assets backing liabilities are typically based on gross yields less an allowance for default risk.

Question 4e: Are stochastic approaches used, or deterministic calculations?
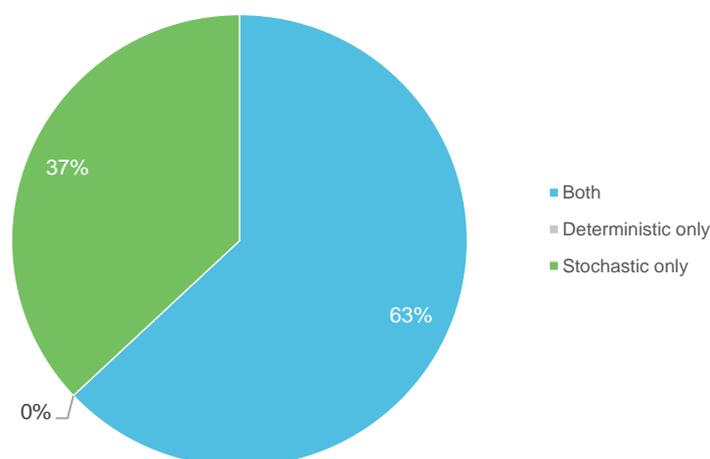
Thanks to the advances made in ALM modelling in recent years, we observed that almost all survey participants have adopted a stochastic approach to some extent in conducting ALM studies.

Further, a majority of participants also use deterministic calculations.

Some insurers using both approaches indicated that the deterministic approach was the primary approach for pragmatic reasons, such as avoiding excessively long model run time; whereas the stochastic approach may only be used for a subset of the calculations, such as option and guarantees.

In addition, a stochastic calculation may be carried out on a list of pre-shortlisted asset allocation strategies, based on the results of a deterministic analysis, to produce the final results for the ALM optimisation exercise.

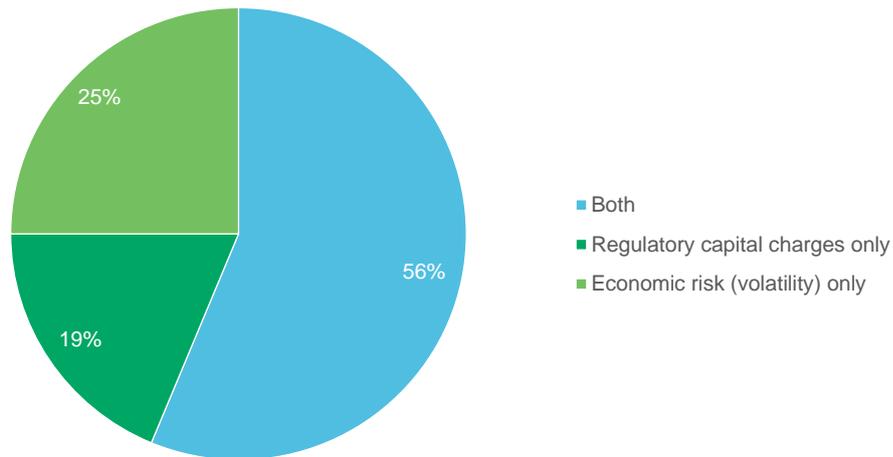FIGURE 13: ARE STOCHASTIC APPROACHES USED, OR DETERMINISTIC CALCULATIONS?

Question 4f: Is the assessment of risk driven by economic risk or by regulatory capital charges?

About 75% of the survey participants use economic risk to some extent for the measurement of risk in the ALM optimisation.

We also observed, however, that a significant proportion of insurers used both metrics, potentially using the regulatory capital as a constraint or second metric. For example, even for insurers in Europe using an internal model for Solvency II, the regulatory capital generated from the internal model is often more severe than their economic view.

Another approach that captures both economic and regulatory capital in one metric is to consider the economic downside risk to the regulatory solvency capital position. This can then capture the exposure if an asset has low regulatory capital but is economically volatile (e.g., domestic government bonds are often favoured by regulatory capital measures) or vice versa where an asset may have penal regulatory treatment but low risk.

FIGURE 14: IS THE ASSESSMENT OF RISK DRIVEN BY ECONOMIC RISK OR BY REGULATORY CAPITAL CHARGES?

- Both
- Regulatory capital charges only
- Economic risk (volatility) only

Question 4g: What limits or constraints (if any) are applied to the asset allocation?
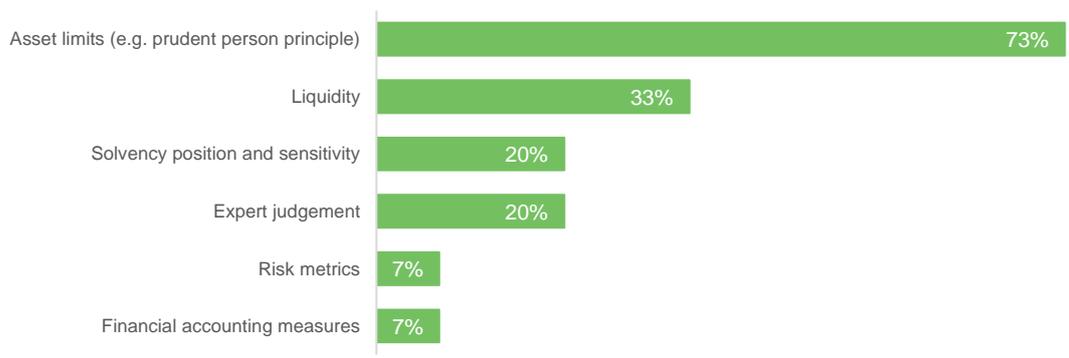
There is a reasonably wide range of metrics that have been used as limits or constraints by insurers for setting asset allocation.

Asset limits are the most widely used metric according to our survey, which can be set internally given an insurer's risk appetite, or imposed externally by regulators. The impact on solvency level and its sensitivity to risk factors are also commonly checked.

Only a third of the survey participants focus on the liquidity impact of asset allocation strategies, but this may reflect the fact that:

- Only high-quality liquid assets are allowed in the investment strategy and hence can be realised with minimal cost
- Insurance liabilities are typically less liquid than the asset considered to back them, and
- New business premiums written each month may be considered as a potential source for liquidity
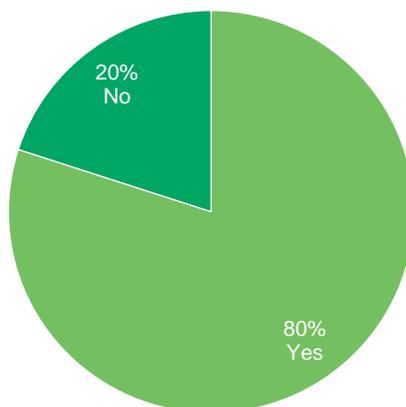
FIGURE 15: WHAT LIMITS OR CONSTRAINTS ARE APPLIED TO THE ASSET ALLOCATION?

Category	Value
Asset limits (e.g. prudent person principle)	73%
Liquidity	33%
Solvency position and sensitivity	20%
Expert judgement	20%
Risk metrics	7%
Financial accounting measures	7%

Question 4h: Are secondary metrics applied, if so what are they?

Responses to this question suggested that the majority of insurers would check the results of their ALM optimisation against a number of secondary metrics.
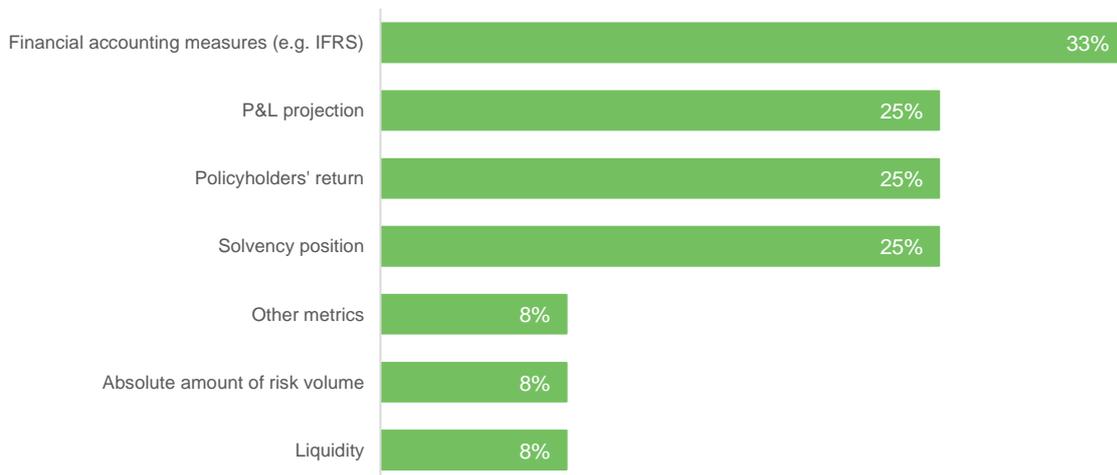
This is consistent with our earlier finding that multiple metrics are ultimately taken into account in defining ALM or SAA, but including all of these metrics in the initial model would lead to a complex multi-factor optimisation.

Typically the metrics considered related to non-economic measures of risk and return such as accounting or regulatory considerations.

FIGURE 17: WHAT SECONDARY METRICS ARE APPLIED?

Question 4i: Where ALM is not based on optimisation of a metric, why is this not done?
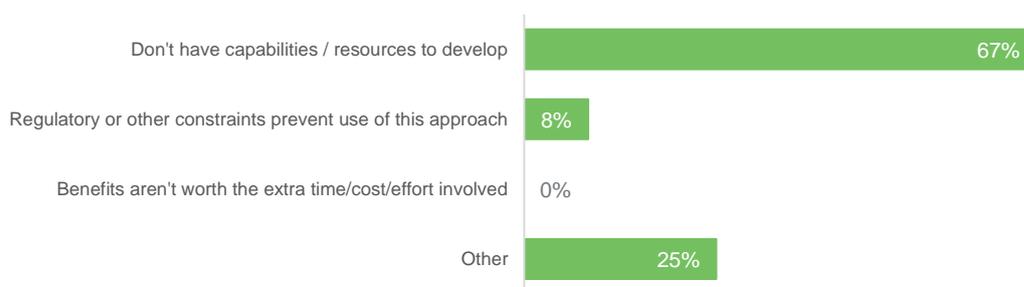
This question was completed by roughly 70% of our survey participants, including many who have adopted an ALM optimisation framework.

This suggests that even when ALM optimisation is performed, there can still be constraints on how fully this can be implemented in practice. The answers may also reflect participants' past experience in terms of issue encountered.

As shown in the chart below, capabilities and resources are the key constraints for insurers to carry out a full-scale ALM optimisation. One key area noted as creating difficulties was the ability to fully reflect the interaction with policyholder participation (see Question 7b).

We also observed that some insurers found it challenging to perform optimisations because the risk limits were only defined at high level, for instance the overall SCR; however, quantifiable limits were less well established at a lower level, say for standalone interest rate risk.

FIGURE 18: WHERE ALM IS NOT BASED ON OPTIMISATION OF A METRIC, WHY?

Other reasons given include management preference, risk appetite not being defined sufficiently, and, in one case, temporarily suspension of normal ALM analysis due to a focus on specific ALM issues.
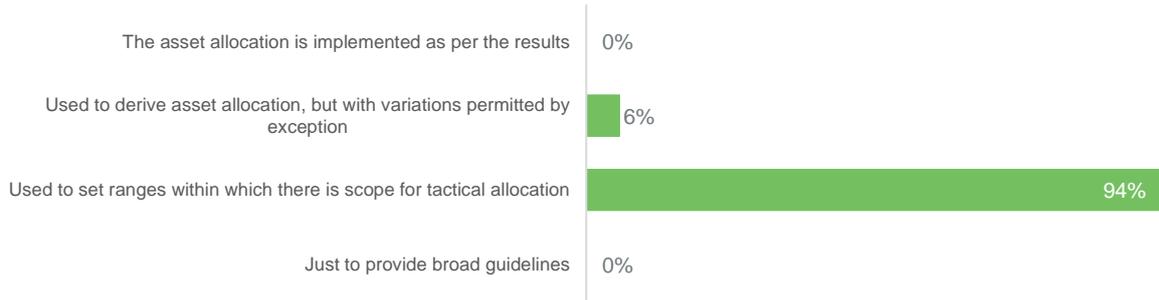
IMPLEMENTATION OF ALM STUDIES

Question 5: How do results of ALM studies feed through into the implementation of asset allocation changes?

The approach taken by most participants of the Survey to the implementation of ALM studies is to set ranges for asset allocations (although in a small number of cases deviation was only permitted by exception).

The use of ranges allows for a degree of tactical asset allocation around a strategic asset allocation. It can also represent a pragmatic solution to the practical issues around implementation of an investment strategy (e.g., the need to frequently rebalance as markets move if tight limits were imposed).

FIGURE 19: HOW ARE THE RESULTS OF ALM STUDIES IMPLEMENTED IN THE ASSET ALLOCATION CHANGES?
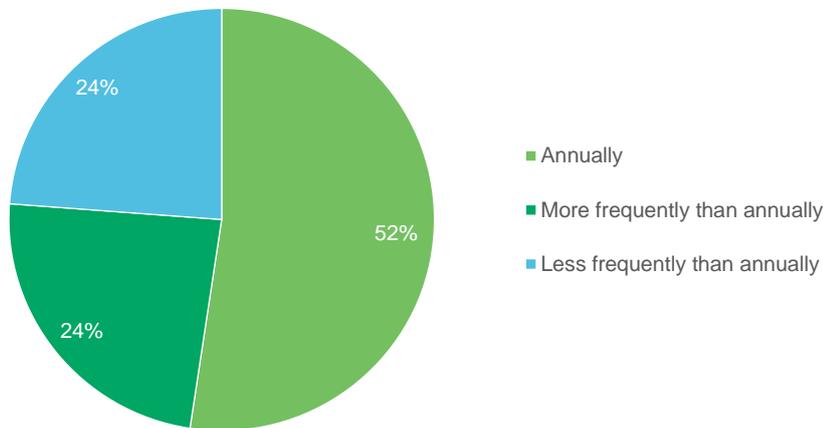
The asset allocation is implemented as per the results — 0%

Used to derive asset allocation, but with variations permitted by exception — 6%

Used to set ranges within which there is scope for tactical allocation — 94%

Just to provide broad guidelines — 0%

FREQUENCY OF REVIEW

Question 6a: How often is the ALM strategy revisited?

Just over 50% of the survey respondents consider an annual review of the SAA/ALM strategy to be appropriate.

Some insurers consider the SAA/ALM studies as providing a long-term view of the asset allocation plan, so that reviews less frequent than annually are appropriate, unless risk limits or other triggers have been breached.

In contrast, some insurers review their strategy multiple times within a year, but this may be through a light touch, with an in-depth review performed less frequently.

Following the outbreak of COVID-19 in 2020 resulting in turbulence in the economy and financial markets, several insurers were preparing to revisit ALM strategy more frequently than previously defined. We have also seen regulators requiring more frequent updates of solvency positions, stress testing, and risk assessments.

FIGURE 20: HOW OFTEN IS ALM STRATEGY REVISITED?

- 52% Annually
- 24% More frequently than annually
- 24% Less frequently than annually

> **Question 6b:** What might trigger a review of a strategy outside of periodic review?

Consistent with our expectations, companies most commonly picked changes in the economic and market environment as a key reason for revisiting ALM strategies outside a periodic review. This would typically drive an automatic recalibration of the parameters of the ALM model.

The next most cited factor is a material movement in regulatory solvency position. While this could be correlated with significant changes to the economic and market environment, it suggests that, in this case, the review is triggered by risk limit considerations.
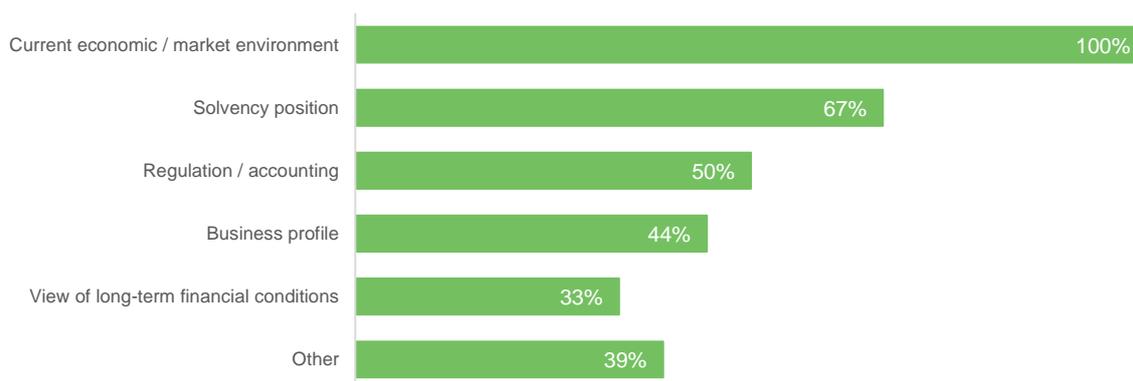
Change in regulation or accounting are also common triggers, and indicates that regulatory and accounting measures are a key, if secondary, constraint.

We have also seen regulators introducing a thematic review of certain areas that impact asset allocation, such as the increased focus on liquidity risk mentioned previously, and the recent focus of the UK regulator on risk limits and the prudent person principle.[3] Examples of regulatory triggers cited also included changes to modelling of liabilities features, e.g., dynamic lapse rates, which would then impact on ALM strategy.

Examples given of changes in business profile triggering reviews included a merger of two funds or companies, a significant influx of new business, or reinsuring a material portfolio.

Other reasons given include stakeholder management, specific regulatory intervention, and a strategic decision to invest in a new asset class.

FIGURE 21: WHAT MIGHT TRIGGER A REVIEW OF ALM STRATEGY OUTSIDE OF PERIODIC REVIEW?

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[3] The Prudent Person Principle is an international principle that assets should be invested with due care, skill, prudence, and diligence that a prudent person would apply in similar circumstances. In Solvency II, this has been encoded in Article 132 of the Directive and replaced the detailed rules and limits that applied in the previous Solvency I regime.

INTERACTION WITH POLICYHOLDER LIABILITIES

Questions 7a to 7b are only applicable to participants who write profit sharing business, which accounted for two-thirds of survey participants.

> **Question 7a:** Is ALM driven from a policyholder perspective or from a shareholder perspective?

Close to 90% of participants who completed this question indicated that the key focus for their ALM work is expected return/value for shareholders. Having said that, a majority of them suggested that they would still consider the policyholders' perspective to some extent within the exercise, particularly if they consider their investment strategy may drive policyholder behaviour, for instance through renewal, lapse or new business, which in turn may have a significant impact on the liability profile.

Our findings indicated that insurers would typically optimise expected return to shareholders, but use impact on policyholders as a constraint.

FIGURE 22: FOR PARTICIPATING BUSINESS, IS ALM PRIMARILY DRIVEN FROM A POLICYHOLDER OR A SHAREHOLDER PERSPECTIVE?
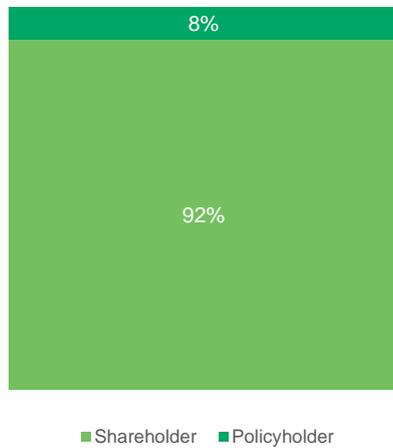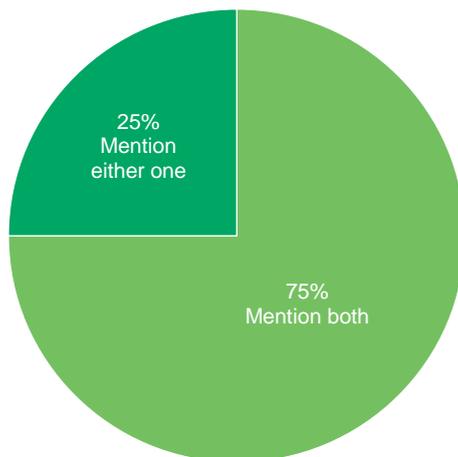

8%

92%

■ Shareholder ■ Policyholder

FIGURE 23: PROPORTION OF RESPONDED PARTICIPANTS MENTIONING BOTH SHAREHOLDER AND POLICYHOLDER

25%
Mention
either one

75%
Mention both

Question 7b: How, if at all, do ALM models reflect profit participation features both in terms of return and capital?

Most respondents who completed this question would take into account the feature of profit sharing business within their ALM modelling. Indeed this is considered a critical part of ALM modelling for insurers in some countries.

This is achieved mainly through some form of dynamic bonus/dividend modelling technique, and formulating profit sharing rules within a stochastic or deterministic ALM model. This is also normally reflected in the assessment of the company's own exposure to market risk.
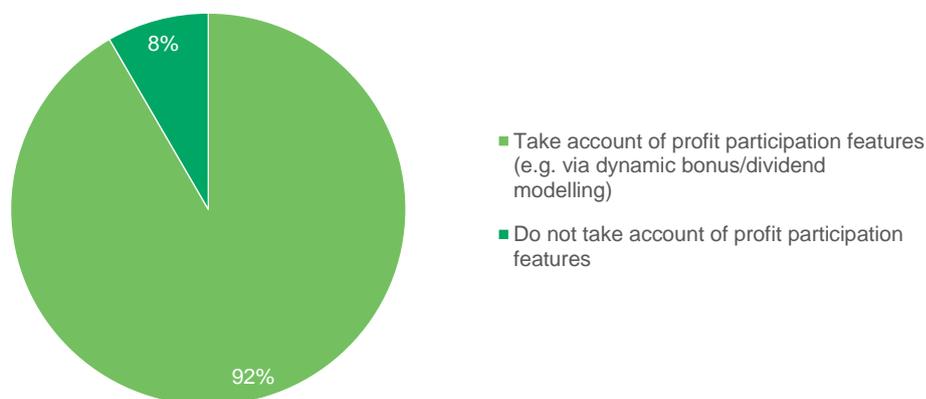
In some markets, such as Italy, management actions performed as a result of ALM changes (e.g., the realisation of gains/losses) interact with profit participation, adding to modelling complexities.

A particularly important concept can be Loss Absorbing Capacity of Technical Provisions (LACTP). Under the Solvency II framework, some SCR components can be reduced to reflect the extent to which liabilities reduce as well as assets under market shocks. In some countries, gross capital requirements under market shocks like spread and equity can be materially reduced due to LACTP. Under the current low interest rate environment this will typically occur when companies have large amounts of unrealised gains. The realisation of such gains, or their gradual unwinding in the form of book yields higher than market rates, can often lead to an expectation of future profit participation which has to be reflected in the best estimate value of liabilities.

Under market shocks however, this future profit participation can be reduced through LACTP resulting in net SCR capital requirements materially lower than the gross market shocks. The determination of LACTP requires modelling of asset liability interactions, including the timing of the realisation of gains and losses. Given the materiality of LACTP, a precise modelling of this important metric can be accomplished, either by using a fully dynamic ALM model like Milliman's MG-Alfa or through a standalone ALM tool like Milliman's Sirius.

A careful modelling of LACTP can then in turn impact which ALM strategies can be most efficient in maximising key metrics.

FIGURE 24: DO ALM MODELS REFLECT PROFIT PARTICIPATION FEATURES?

- Take account of profit participation features (e.g. via dynamic bonus/dividend modelling)
- Do not take account of profit participation features
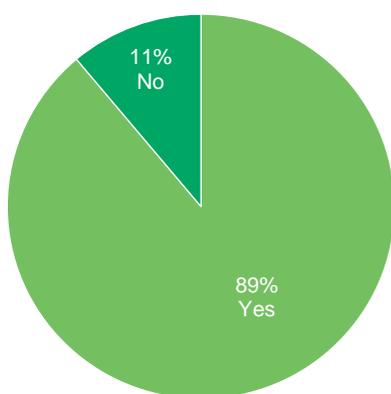
8%
92%

TREATMENT OF NEW BUSINESS

Question 8: Do ALM metrics/projections/analyses take account of new business?

As shown in the chart below, most insurers allow for new business impact in the assessment of ALM performance and manage the business from a business projection perspective. For example, some insurers allow for new business premiums to match outflows on in-force business from a liquidity point of view (see Questions 3a and 4g for more on liquidity).

A minority of insurers suggested that they would also look at business only on a closed book basis.

For some insurers, by contrast, a key focus of ALM is on the asset allocation applied to new business premiums, with the in-force managed on a more passive basis.

FIGURE 25: DO ALM ANALYSES TAKE ACCOUNT OF NEW BUSINESS?

CONSISTENCY OF APPROACHES IN GROUPS

Question 9a: For Groups, how do ALM metrics link in between companies and Group levels?
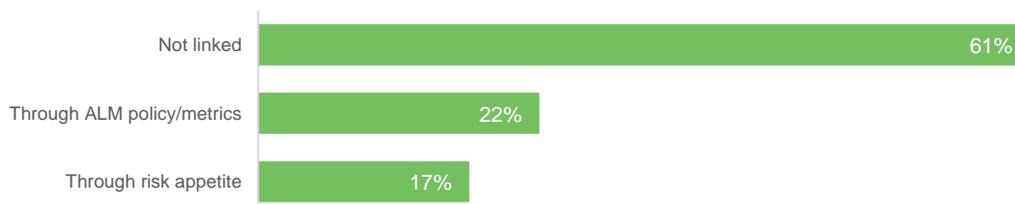
The ALM metrics used are typically not directly linked between a Group and its subsidiaries.

This reflects the fact that individual subsidiaries are often subject to different local regulation, accounting and product types (e.g., profit participation and policyholder options) and different markets (e.g., competitive pressures on policyholder returns). Capital may also not be fungible between entities, so that aggregating measures to Group level may not be meaningful.

Therefore in practice, ALM cannot sensibly be managed solely at Group level, and decisions made at that level may be sub-optimal when implemented in local subsidiaries.

Nevertheless, particularly for listed Groups, we might have expected a greater focus on the aggregated effect on the key KPI metrics for the Group as well as Group-wide risk limits, and a consideration of potential synergies. For example, exposure to a particular asset class, within a Group's risk appetite, may most optimally sit within a particular subsidiary for various reasons.

FIGURE 26: HOW DO ALM METRICS LINK IN BETWEEN COMPANIES AND GROUP LEVELS?
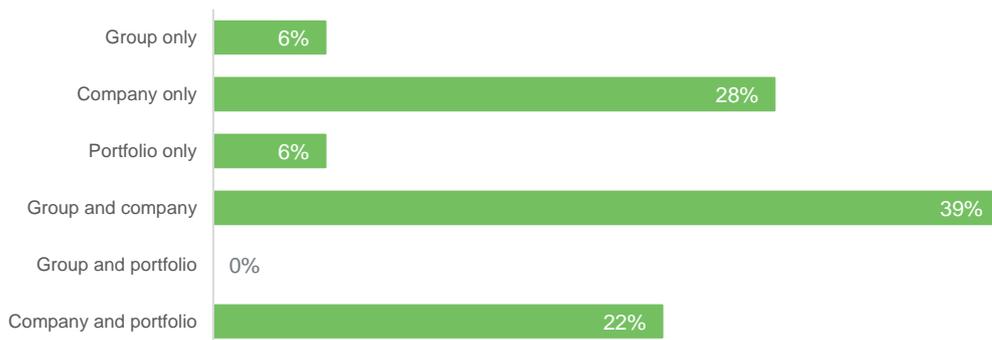
Question 9b: At which level is ALM strategy set?

Reponses to this question suggested that many insurers would set ALM strategy at both Group and company levels, as well as at both company and asset portfolio levels.

It is particularly common to set strategy at company level, even if it may also be set above or below this level, reflecting the governance requirements for individual entities.

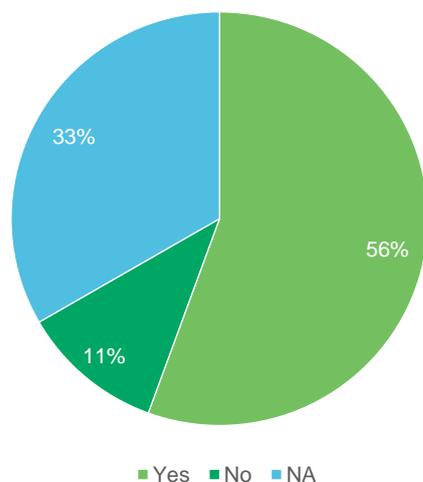**FIGURE 27: AT WHICH LEVEL IS ALM STRATEGY SET?**

Question 9c: Is a common metric applied?

Although the link of ALM metrics between Group and its subsidiaries is not strong according to the responses to Question 9a, the majority of the survey participants would look to employ a set of common ALM metrics to perform ALM for each entity.

In our view, this approach assists the communication of investment strategies between offices within the Group, e.g., it is fairly common that Group would define reporting metrics and have representation on local risk committees. Also, if a consistent metric is optimised at each entity level this ought to lead to a reasonably optimised position for the overall group.

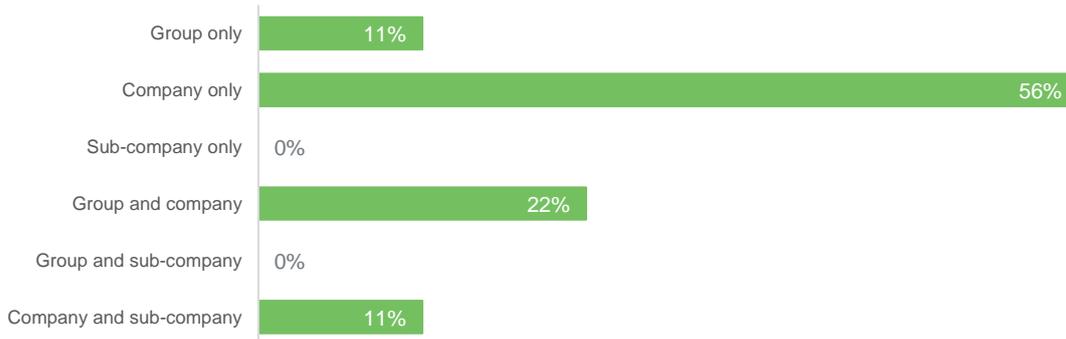**FIGURE 28: IS A COMMON METRIC APPLIED AT EACH LEVEL WITHIN THE GROUP?**

Question 9d: Are limits set at Group level, company level, or below this level?

Most participating insurers have asset and risk limits set at the company level, but less than half of them have the limits at the Group level. A minority of participants sets limits at the portfolio level or potentially the product level.

This may reflect that fact that at the Group level, only a number of key limits are set and monitored, whereas for operational purposes, a greater number of more granular limits have been set for local operations.

FIGURE 29: ARE LIMITS SET AT GROUP LEVEL, COMPANY LEVEL, OR BELOW THIS LEVEL?

Group only	11%
Company only	56%
Sub-company only	0%
Group and company	22%
Group and sub-company	0%
Company and sub-company	11%

OTHER ISSUES

Question 10: What other issues arise from the use of ALM metrics?

A common theme from participants is around the mismatch between the economic view of return and risk of their assets, versus the view adopted by accounting and/or solvency regulations. This causes conflicts in setting asset allocations. The move towards more economic risk-based measures in accounting (e.g., IFRS) and regulation (e.g., International Capital Standards) should, in theory, reduce this conflict, but as seen in Europe with Solvency II, in practice regulatory regimes will usually constrain insurers from taking their own economic view and may include certain artificial elements.

FIGURE 30: ARE THERE OTHER ISSUES ARISING FROM USE OF METRICS?

Mismatch of economic and accounting and regulatory metrics	50%
Other	22%
NA	28%

Appendix: Questionnaire

We asked participants to complete the following questions:

KEY TOPICS

What is the overall goal of ALM

What are the aims of ALM?

In particular, which of the below apply – and of those which is the main focus:

1. Maximising expected earnings (for an acceptable level of risk)

2. Maximising return on capital or economic value added

3. Optimising regulatory capital

4. Risk reduction

5. Meeting policyholder expectations

6. Matching asset and liability flows

7. Other (please specify)

Which business metrics are key when assessing ALM

Here we are interested in which metrics might be used to assess the success and impact of an ALM strategy.

Again, it is useful to understand which of the metrics below are used, and of those, which might be considered most important:

1. IFRS profits

2. Impact on distributable earnings

3. Regulatory Solvency Ratio impact

4. Impact on solvency projections (=ORSA under Solvency II)

5. Duration gap or closeness of cashflow matching

6. Expected returns to customers

7. Real world embedded value

8. Market-consistent value of business

9. Economic capital impact

10. Other (please specify)

Link with risk appetite statement/KPIs

How does ALM link in with general risk appetite? In particular:

- What key metrics are used to define risk appetite and/or what KPIs are used to manage the business?
- How does this link in to ALM policy, if at all—either implicitly or explicitly?

ALM optimisation

Here we are interested in how the ALM optimisation would be performed.

There are a number of approaches but we might categorise them into broad categories:

1. ALM is optimised based on use of a specific metric (within constraints)

2. ALM decisions are made on a more ad-hoc basis, for example, based on proposals from the investment team or market opportunities, but then assessed against metrics.

3. Other approaches (please specify)

Where a metric is used:

- What metric(s) are used?
- Is there a return vs. risk trade-off, i.e., some form of efficient frontier?
- Is there a single metric based on risk-adjusted return (e.g., with a cost of risk capital deducted from investment returns)?
- Is the approach 'real world' or 'market consistent'?
- Are stochastic approaches used, or deterministic calculations?
- Is the assessment of risk driven by economic risk (e.g., volatility) or by regulatory capital charges (e.g., SCR), or both?
- What limits or constraints (if any) are applied to the asset allocation?
- Are secondary metrics applied and which, i.e., ALM portfolios are derived such that a secondary metric is within an acceptable range?

Where ALM is not based on optimisation of a metric, why is this not done?

- Don't have capabilities/resources to develop
- Benefits aren't worth the extra time/cost/effort involved
- Regulatory or other constraints prevent use of this approach
- Other (please specify)

How are the result of ALM studies implemented?

How do results of ALM studies feed through into implementation of asset allocation changes?

- The asset allocation is implemented as per the results
- Used to derive asset allocation, but with variations permitted by exception
- Used to set ranges within which there is scope for tactical allocation
- Just to provide broad guidelines

Frequency of review

How often is ALM strategy revisited?

- Annually
- More frequently
- Less frequently than annually

Which of the factors below might trigger a review of strategy outside of periodic review?
For example, significant change to:

- Business profile
- Current economic/market environment
- View of long-term financial conditions
- Solvency position
- Regulation/accounting
- Other (please specify)

Interaction with policyholder liabilities

For participating business, how is profit participation taken into account?

- Is ALM driven from a policyholder perspective (e.g., expected bonuses) or from a shareholder perspective (maximising shareholder returns or reducing risk of guarantees)?
- How—if at all—do ALM models reflect profit participation features both in terms of return and capital (loss absorbing capacity of technical provisions)?

Miscellaneous

- Do ALM metrics/projections/analyses take account new business?
- For Groups, how do ALM metrics link in between companies and Group levels?
  - At which level (Group, company, portfolio) is ALM strategy set?
  - Is a common metric applied?
- Are limits set at Group level, company level, or below this level?
- Other issues arising from use of metrics

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