KPMG
cutting through complexity

FINANCIAL SERVICES

Technical Practices Survey 2015

Solvency II

Contents

1 Foreword

John A Jenkins
Partner,
KPMG LLP

As always, it gives me great pleasure to present our report on this year's Technical Practices Survey. Now in its tenth year, our Technical Practices Survey continues to be highly regarded by individuals, respondents and indeed other consultancies as a guide to the range of practices adopted in various areas of UK life actuarial work as well as serving as a touchstone in a rapidly evolving regulatory landscape.

The main focus of our Technical Practices Survey for this year is Solvency II. With the official implementation date for Solvency II only 3 months away (as at the time of printing), this year's report is more timely and relevant than ever. Our report draws out the areas of the regulations which have become clearer since the 2014 report was produced (for example the matching adjustment and the volatility adjustment) and also highlights how practices have changed since last year (for example the methods used to determine the capital stresses and size of the stresses assumed).

Our approach aims to build on the experience of past surveys and deliver more insights into the UK life industry's approach to Solvency II and its readiness.

Working in a top advisory firm, some of the most common questions we have been asked by our clients over the last 12 months relate to Solvency II, in particular the technical and operational requirements. Therefore, specific questions on these areas were included, focusing on what respondents are doing, how they approach certain problems and what best practice (and the range of practices) on certain items appears to be.

The survey requires a large investment of resources, both for the respondents and for us, but we believe that this investment is well worth the time and effort because of the usefulness of the results. We are grateful to all the respondents who found the time in their busy schedules to take part and would like to extend our thanks to all of you once again. In Section 10 of this report, we have listed the 29 respondents who have contributed to this survey. As I am sure you will agree, the range of firms involved by size and type makes the results set out an excellent indication of the UK life industry's approach to Solvency II. I hope that if you have not been able to take part in the survey this year that you would be able to do so in 2016.

As always, it gives me great pleasure to present our report on this year's Technical Practices Survey.

In recognition of the considerable resource requirements which accompany the preparation for Solvency II for most of our respondents, this year's survey is somewhat more targeted than last year's, with fewer questions being asked overall and a reporting style which is more focussed on enhancing the key findings.

I would like to extend a very special thank you to all my colleagues for their hard work in carrying out the survey and compiling this report (details of whom can be found in Section 9), whilst at the same time carrying out their client service responsibilities. I would like to extend particular thanks to Jane Parker, Christopher Pountney, Jean Le Roux and Thomas Murphy for their hard work in managing the survey.

I believe that you will find this report useful and interesting and look forward to receiving any comments or suggestions you may have on how we can make the questions, analysis or report even more useful or relevant to you in future publications.

Regards

John A Jenkins
Partner, KPMG LLP

2 Executive Summary

The purpose of our Technical Practices Survey is to enable UK life insurance firms to identify where the key technical issues lie within the industry, and the range of methodologies and approaches that have been used.

In addition to the insight gained from the responses to each of the distinct survey questions, we have observed some overall themes from our analysis of this year's responses.

We have seen greater clarity over the long term guarantees package and transitional measures as firms move towards 1st January 2016. Many firms will actually not apply for the Matching Adjustment, Volatility Adjustment or transitional measures, and for those that will apply (and in practice have by now applied) there has been some harmonisation of approach in response to reducing regulatory uncertainty.

There has been a reduction in the number of firms intending to use a Partial Internal Model, with firms moving instead to the Standard Formula and several no longer intending to apply to use a Partial Internal Model at a later date.

Tight reporting timelines remain a significant challenge particularly for Standard Formula firms, for whom speed of reporting is currently their highest priority. We were surprised that more firms had not yet performed a dry run of their Solvency and Financial Condition Report. Though speed of reporting is both a priority and a challenge, more firms are intending to continue to produce an Embedded Value following Solvency II implementation than was the case last year.

For firms in IMAP the current focus is the use test and increasing the extent to which they use the internal model in business decisions. We also asked Internal Model firms for more detail in this year's survey on the methodologies they use for market risks.

We have seen changes to firms' technical modelling of market risks consistent with the continuing low interest rate environment. In some territories government debt has traded at negative interest rates. A number of firms have increased the sophistication of their interest rate modelling approach by moving to a blended approach with stresses that are partly proportional and partly absolute.

The referendum in Greece saw the continuation of the Eurozone crisis and there has been a concurrent change in firms' approach to sovereign debt. Some firms have divested from sovereign debt and more firms are holding capital against sovereign default risk than was the case last year in line with the recent supervisory statement from the PRA.

3 Introduction

3.1 OBJECTIVES

The KPMG Life Actuarial team has been carrying out the Technical Practices Survey since 2006. This year our aim has been to provide detailed analysis on how the UK life insurance industry has approached the implementation of Solvency II processes, calibrations and calculations.

In this key development period, as Solvency II moves toward implementation, our analysis covers the approach the UK life insurance industry has taken to Solvency II through year end 2014 reporting as well as a forward looking analysis of where the industry expects to be at 1st January 2016 and beyond.

3.2 SURVEY METHODOLOGY

The data for this project was collected through a survey that was sent out to respondents for completion in May and June and in some cases, July. In order to make the data as representative as possible, almost every UK life office with an internal actuarial function was invited to participate. We attempted to keep the survey to a reasonable length and we are hopeful it was not too onerous to complete.

For data protection and commercial confidentiality reasons, individual responses have been, and will continue to be, treated with strictest confidence. For the purposes of this report, the results have all been presented in an aggregate format or have been made anonymous.

The survey primarily contained multiple choice or numeric response questions. Multiple choice questions typically are quicker to answer than open response questions and so we have used the multiple choice format wherever possible (with a suitable other or not applicable option) so that the survey could be completed in a time-efficient manner. Each year we review the feedback we receive in order to improve the options for these questions.

We wanted to highlight any common issues that respondents may be having, as well as provide a reflection of the variety of approaches adopted within the industry.

3.3 TOPICS OF INTEREST

The survey questions were designed to address the issues that clients have raised over the past 12 months. This year's survey has moved the main area of focus to Solvency II given the recent IMAP, MA, Technical Provisions Transitional applications and the imminent go-live date.

The structure of the survey was designed to consider the key issues and challenges within each pillar of the Solvency II framework, with our questions in each section aligned to the issues raised.

Our more targeted approach to this year's survey questions is in acknowledgement of the considerable resource requirements faced by many of the respondents, as they prepare for Solvency II. The focus we have placed on highlighting key findings in our reporting reflects our commitment to supporting respondents in their preparations.

3.4 INTERPRETATION OF THE RESULTS

Our survey was targeted at over 60 UK life offices with internal actuarial functions, and we are delighted to have had 29 responses this year.

The true test of a survey is that it continues to retain a significant level of interest. It is pleasing to see that this year we have a high response rate despite the burden presented by additional reporting requirements and Solvency II applications. We believe that this reflects that firms participating in the survey continue to find the results to be very useful and relevant.

While the number of responses should be considered as very healthy for this type of survey, the response rate alone does not convey all the information about the representative nature of the survey. For example, some individual responses were completed on behalf of all the separate insurance businesses within a group. The responses have been from firms of varying sizes which operate in a wide range of markets. Additionally, respondents varied in structure and have included some that were part of larger (often multi-national) groups; others are large in their own right and listed on various European exchanges.

When presenting our analysis we have also provided the context for our findings by including a profile of the respondents. A graphical representation of the respondents can be found in Section 4, and a full list of respondents is in Section 10 of this report. Most of the major UK life offices have taken part in the survey.

4 Profile of Respondents

In order to set the context for the findings of the survey, this section outlines the profile of survey participants. The profile captures respondents' attributes such as the size of in-force liabilities in terms of Solvency II BEL insurance liabilities, ownership status and composition of in-force business by product class and reporting basis.

4.1 PROFILE

Our survey received participation from a wide spectrum of respondents in the UK life insurance market, ranging from small to large businesses in terms of their in-force liabilities. We have categorised respondents by size, with reference to the size of their Solvency II BEL insurance liabilities.

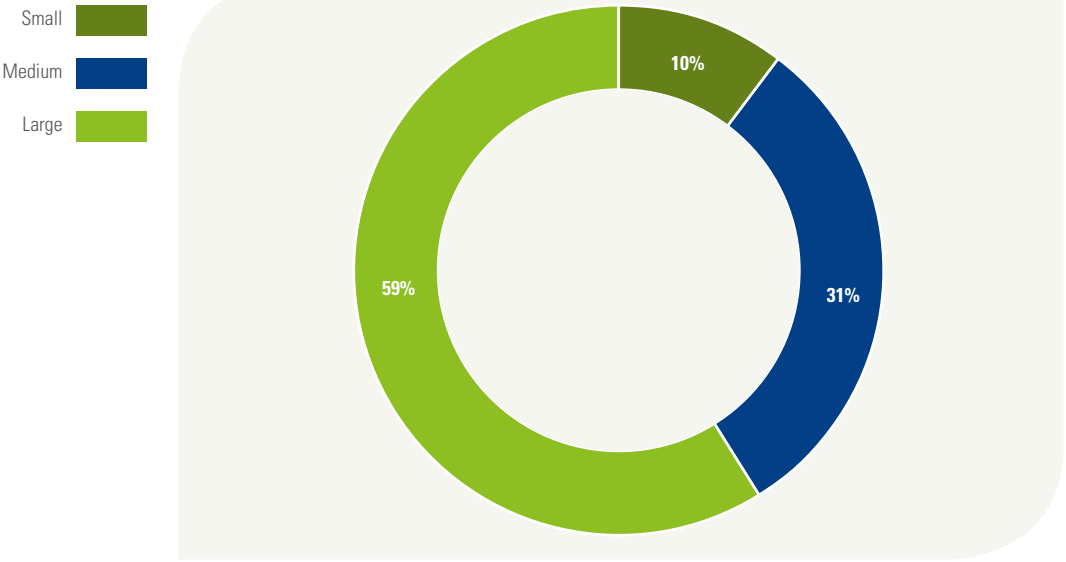
Throughout this year's survey, we use the following definition when referring to the size of the respondent:

Small: BEL insurance liabilities totalling less than £500m

Medium: BEL insurance liabilities totalling more than £500m, but less than £5bn

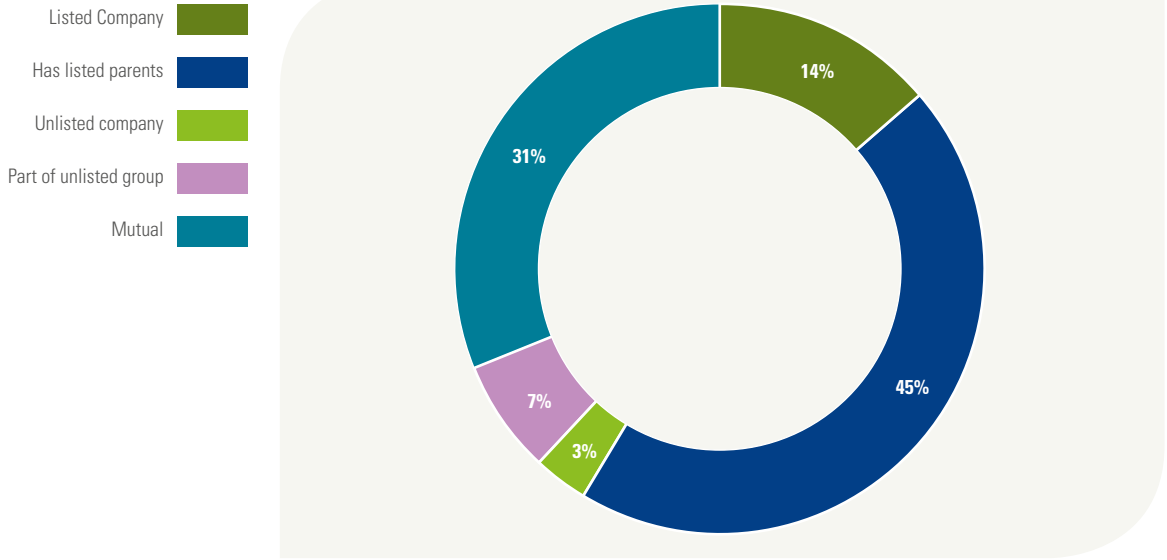
Large: BEL insurance liabilities totalling more than £5bn

Graph 4.1.1:
Respondents by size of Solvency II BEL insurance liabilities as at 31 December 2014



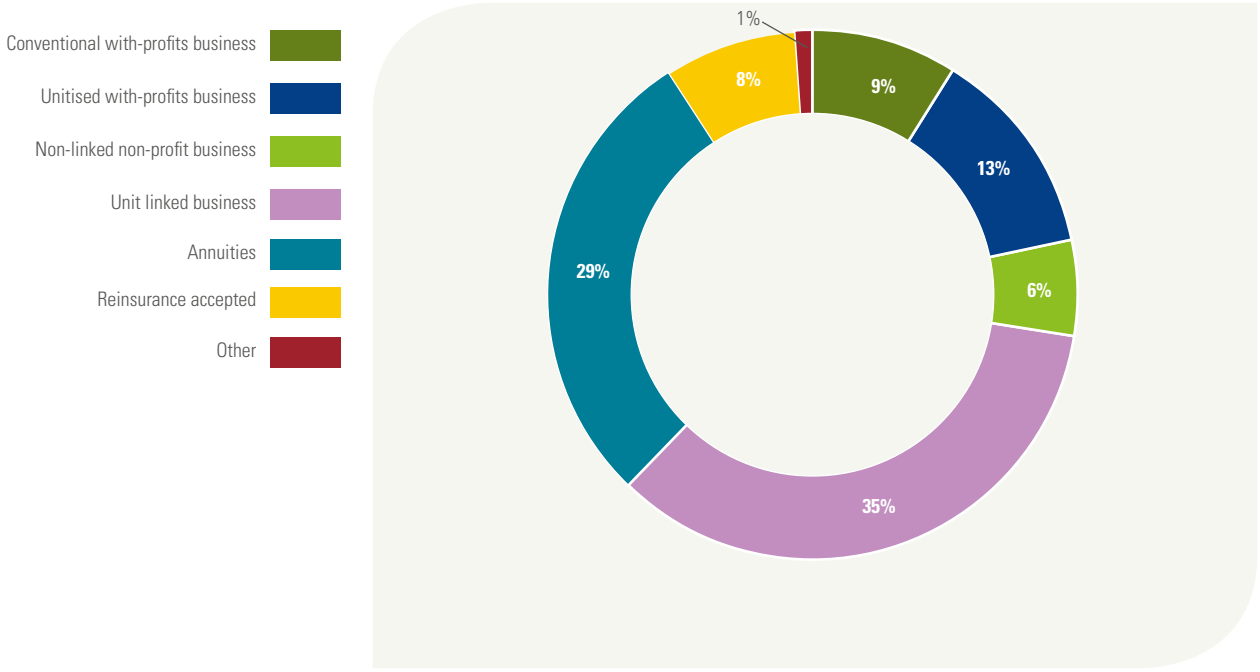
As can be seen from the above graph, 59% of respondents (out of a total of 29) had BEL insurance liabilities exceeding £5bn at the end of 2014. This is very much in line with the size profile observed last year, with the proportion categorised as "small" down slightly from 16% to 10% during 2015.

Graph 4.1.2:
Please state the ownership status of your company?



In terms of ownership structure, Graph 4.1.2 shows that 59% of the respondents this year were listed companies, either directly (14%) or via a parent entity (45%). A further 31% of respondents were Mutuals and only 10% were unlisted. This distribution of ownership structure is in line with what was observed in the 2014 survey.

Graph 4.1.3:
Composition of in force business of respondents in terms of Solvency II BEL

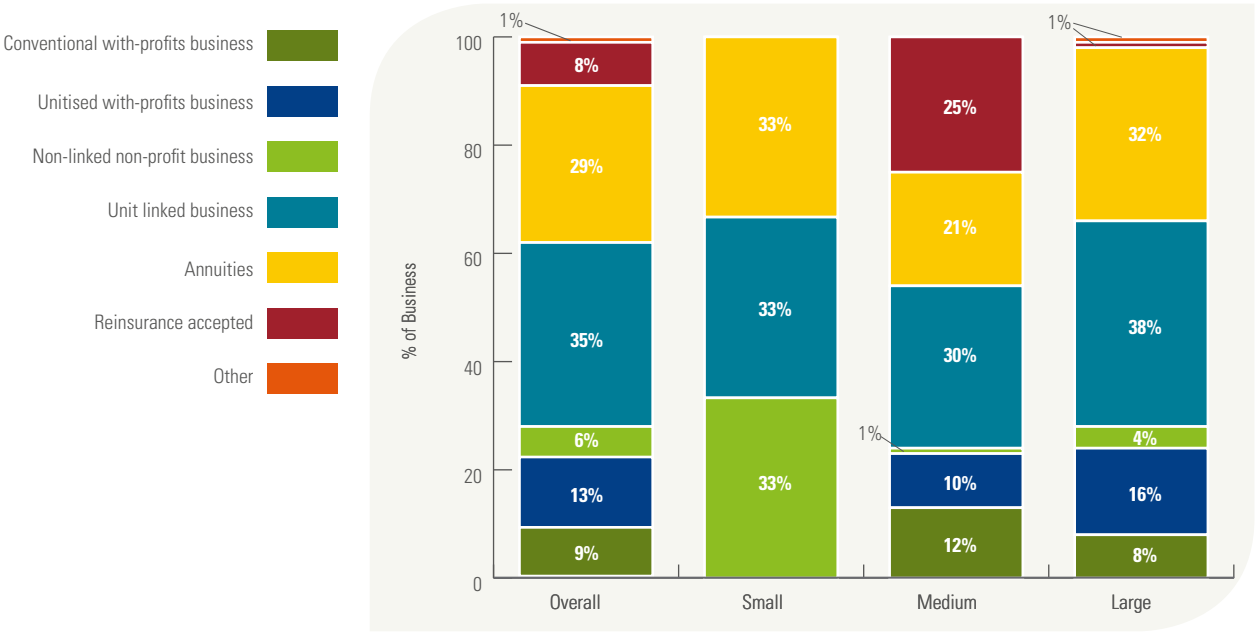


The main categories of business written across the 29 respondents were as follows:

- Unit-linked (35%)
- Annuities (29%)
- With-profits (22%) split by Conventional WP (9%) and Unitised WP (13%)

The mix of business held by the respondents has remained in line with that observed in previous surveys, however, given the recent budget reforms it is not clear how the proportion of total BEL insurance liabilities represented by annuity business will change in the future. Specifically, the de-risking model followed by many pension funds will serve to increase the (annuity) liabilities of bulk annuity providers, which might be offset to some extent by lower levels of annuitisation by individuals with retirement savings following the (more flexible) pension reforms introduced in the budget during 2014.

Graph 4.1.4:
Composition of in force business of respondents in terms of Solvency II BEL (split by size of firm)

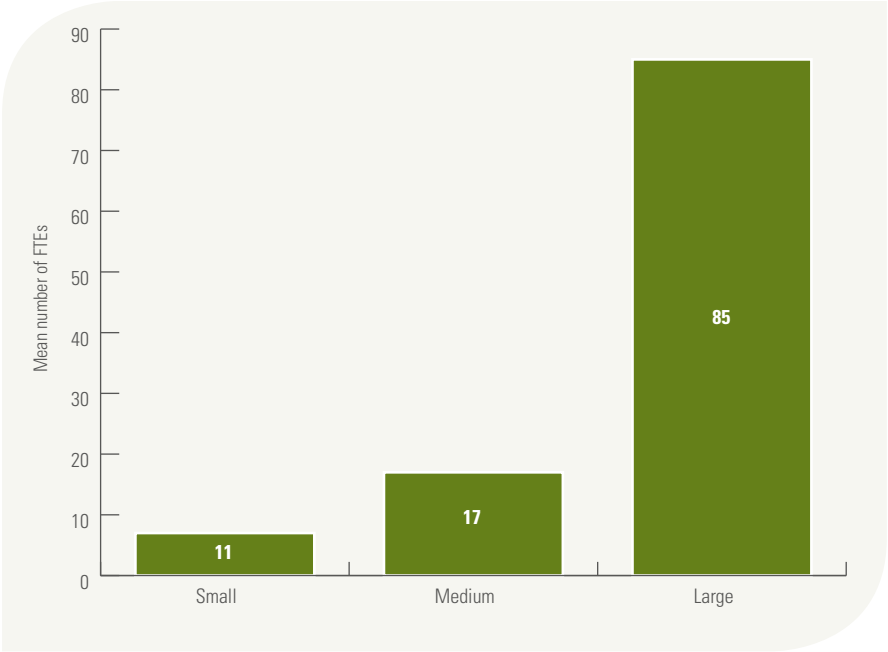


Drilling deeper into the business mix shown in the preceding graph, Graph 4.1.4 shows that larger firms have greater liability diversification in their balance sheets, with the composition of liabilities in medium and large firms more closely aligned with the overall picture in Graph 4.1.4. In contrast, the liabilities of smaller firms are concentrated within unit- linked, annuity and other non-profit business, distributed in roughly equal proportions.

4.2 SIZE OF ACTUARIAL FUNCTION

We asked respondents to provide their number of FTE actuarial staff, by area, ignoring line 1 and line 2 differences and internal structure.

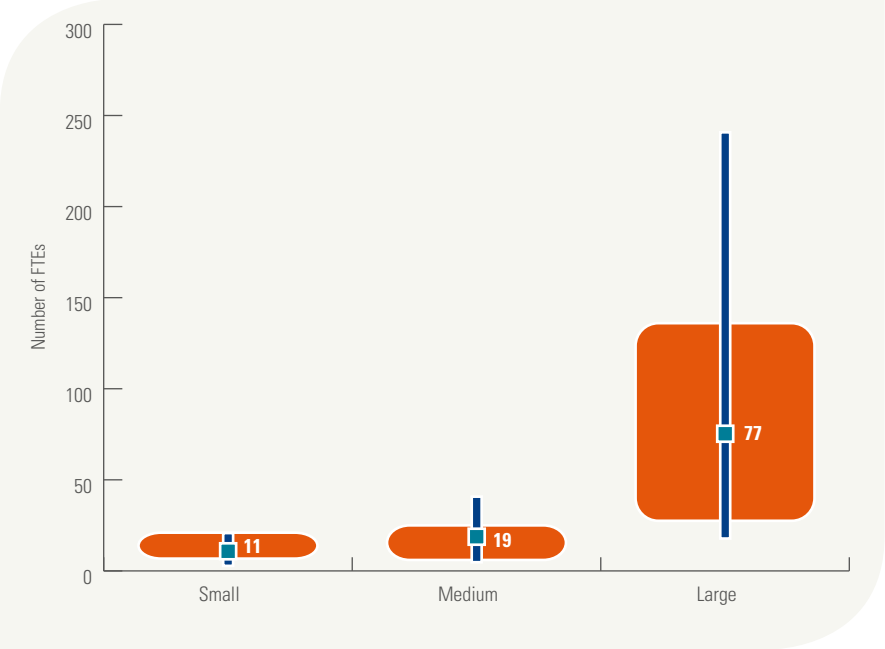
Graph 4.2.1:
Number of FTE actuarial staff by size of firm



The relationship between the size of the respondents and the number of actuarial staff employed by them is shown in Graph 4.2.1. As expected, this shows that, on average, large firms have considerably larger actuarial teams than small and medium sized firms.

Last year, the results for small firms were amended to remove some reinsurers whose size of actuarial staff to size of firm was unusual and skewed the results and we have used a similar approach this year. In both years, the raw data suggests that small firms have a similar sized actuarial staff to medium firms, but removing outliers from the data created a more expected result in both years.

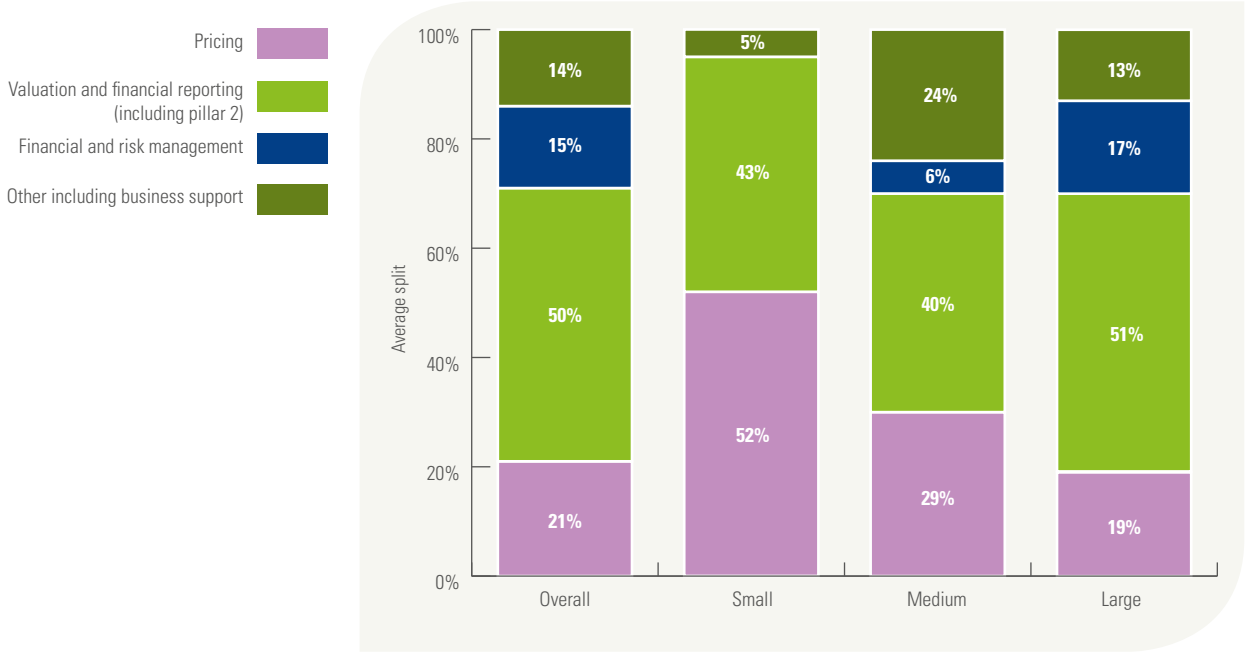
Graph 4.2.2:
Distribution of Actuarial Team Size



Note that the Graph 4.2.2 shows as a box and whisker plot the distribution of actuarial team size. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

There appears to be a relatively large dispersion of actuarial team size amongst the larger companies in the UK, reflecting the fact that the approach to carrying out the actuarial functions (size of business, geographical locations of business written and level of sophistication in management of actuarial risks etc.) varies widely. Within the "Large" category of respondents, the firm with the biggest actuarial function had a total of 245 FTEs employed within actuarial and the smallest employing only 18 FTEs.

Graph 4.2.3:
Team size by Function



On average, across all categories of respondents, the largest proportion (50%) of actuarial staff are employed in valuation and reporting-related functions. This is consistent with the main area of actuarial involvement seen within medium and larger firms. In contrast (and consistent with the profile observed in the 2014 survey), smaller firms employ the largest proportion of their actuarial staff within the pricing function. This skew towards pricing within smaller firms possibly reflects the fact that the majority (66%) of these firms' liabilities are concentrated within non-linked non-profit and annuity business, as can be seen from Graph 4.1.4.

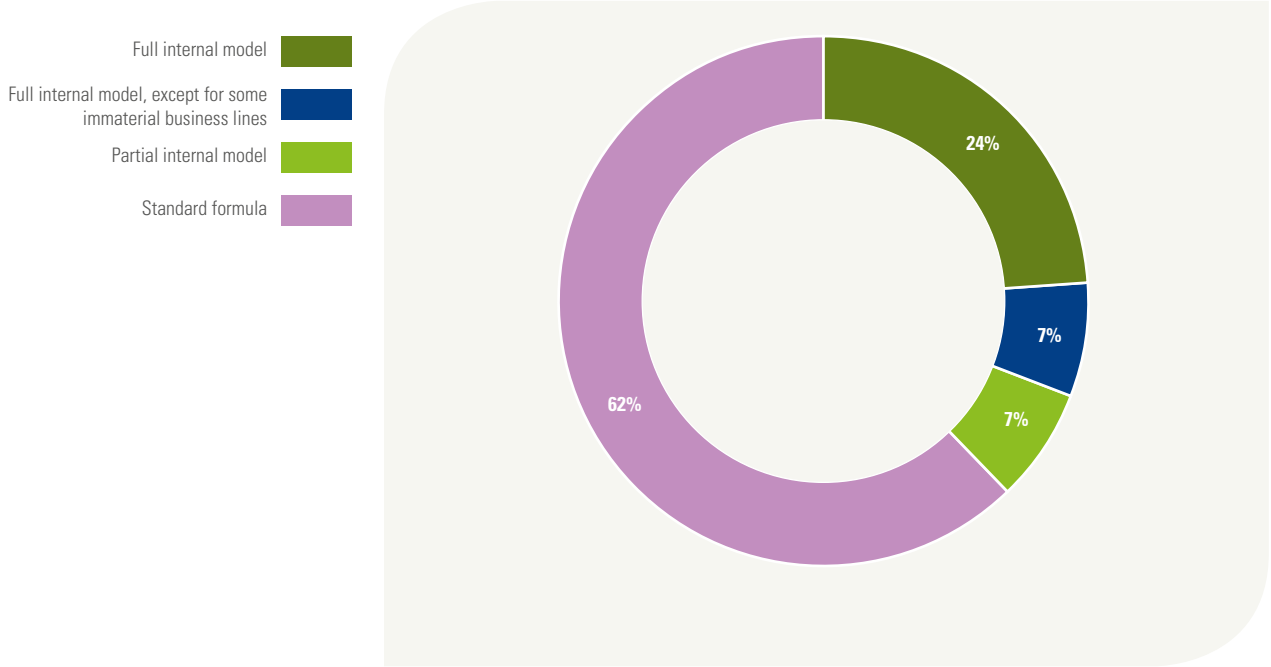
5 Readiness for Solvency II

With the Solvency II go live date fast approaching and deadlines for PRA applications already starting to pass (or have already passed at the time of publication) we asked participants about what they are applying for and how they expect their Solvency II process to change over time.

5.1 SOLVENCY II APPROACH

Calculating the Solvency II Solvency Capital Requirement

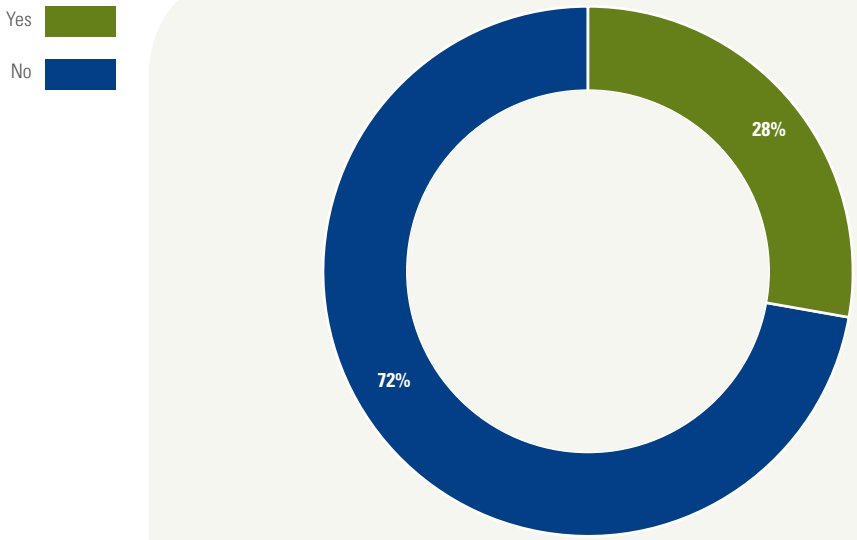
Graph 5.1.1:
With which method is your firm planning to calculate the Solvency II Solvency Capital Requirement at outset on 1st January 2016?



Compared to last year a similar proportion of firms are planning to use a full internal model, however, far fewer firms are opting for the use of a partial internal model when compared to last year. The proportion of firms that have decided to calculate their SCR using the Standard Formula has increased significantly from 53% to 62% since the previous survey.

Moving to a (partial) internal model

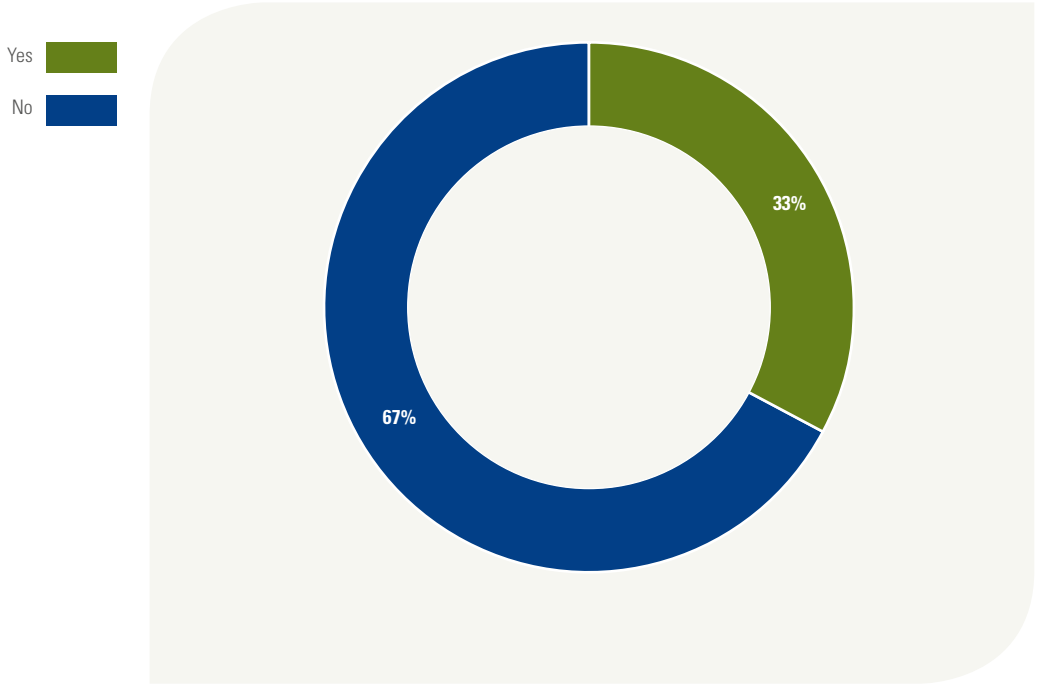
Graph 5.1.2:
If you are a "Standard Formula" firm, do you intend to apply to use a (partial) internal model approach at a later date?



Four of the standard formula companies are planning to apply for a (partial) internal model at a later date. This is generally due to firms not being in the position to provide the extensive evidence required for an IMAP at this point in time.

Extending the partial internal model scope

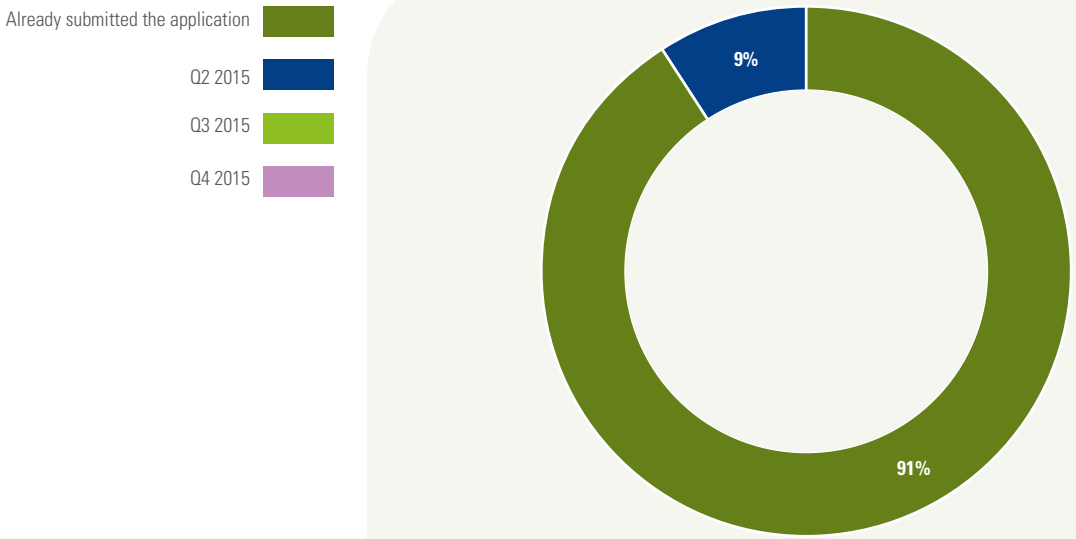
Graph 5.1.3:
If you are a "Partial Internal Model" firm, do you intend to extend the scope and / or move to a full internal model at a later date?



Out of the 3 partial internal model firms who took part in the survey, only one of them has indicated that they intend to increase the scope of their partial internal model or move to a full internal model.

(Partial) Internal model application

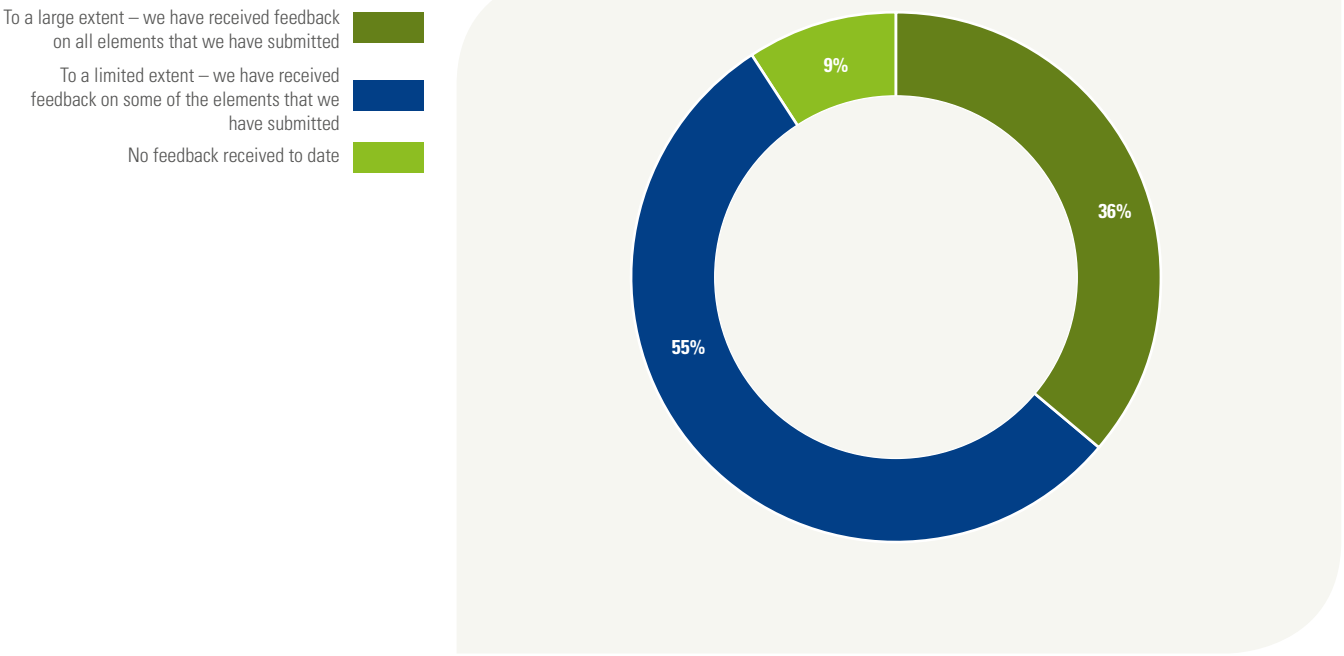
Graph 5.1.4:
If you answered that you are an "Internal Model" or "Partial Internal Model" firm, when do you intend to submit your application for approval of your (Partial) Internal Model?



At the time of writing, all companies intending to apply for a (partial) internal model have already submitted their application to the PRA. This is perhaps not surprising given the timing of survey responses and the PRA's guarantee to complete their review of applications within 6 months.

PRA feedback

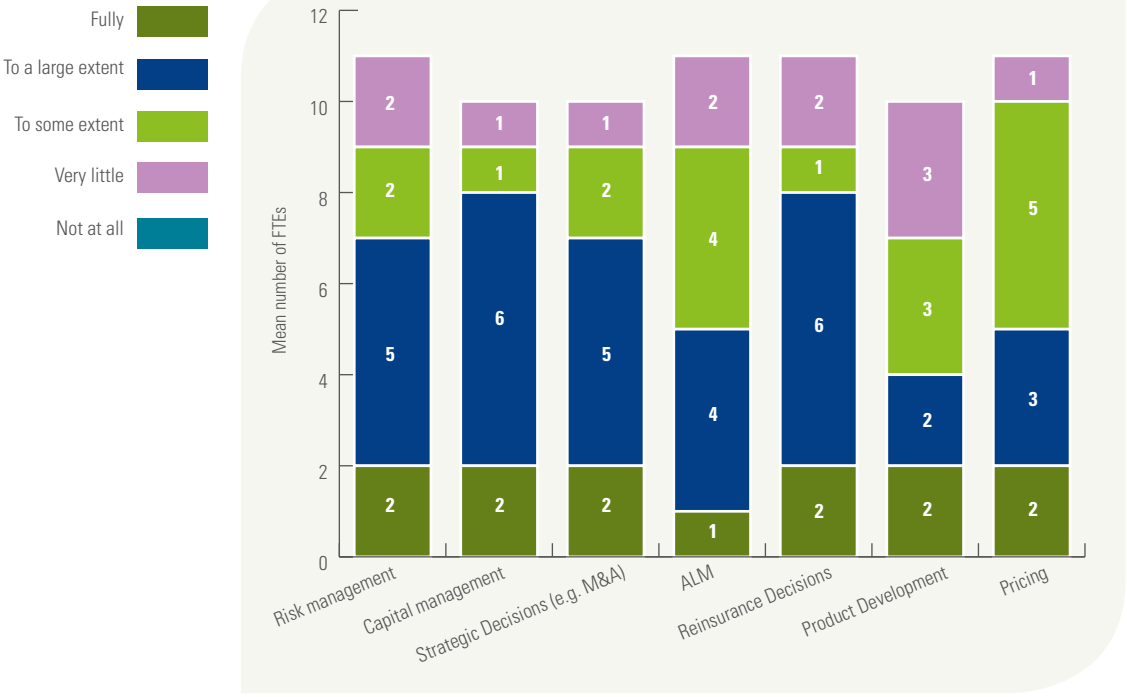
Graph 5.1.5:
If you are an "Internal Model" or "Partial Internal Model" firm, have you received any feedback from the PRA on your submission or pre-approval documenation?



Of those firms applying for either the use of a full or partial internal model, 91% have received feedback on their application in some form. At the time of writing, only one of the firms wishing to apply for full/partial internal model had not yet received feedback from the PRA.

Internal model use in business decisions

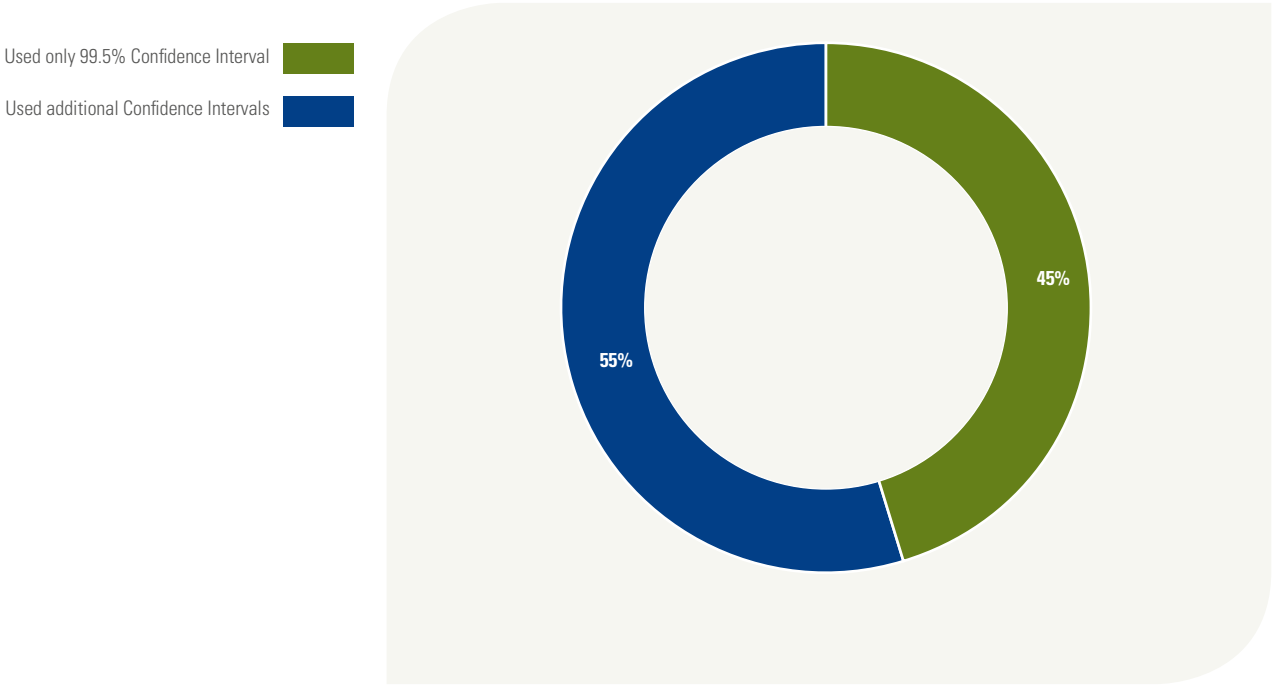
Graph 5.1.6:
If you are an "Internal Model" or "Partial Internal Model" firm, to what extent do you currently use your internal model when making business decisions in the following areas?



Note, some columns are shorter as some of the firms have marked the section as not relevant to themselves. Overall we are seeing a relatively strong level of integration of Solvency II across all areas.

Use test confidence interval

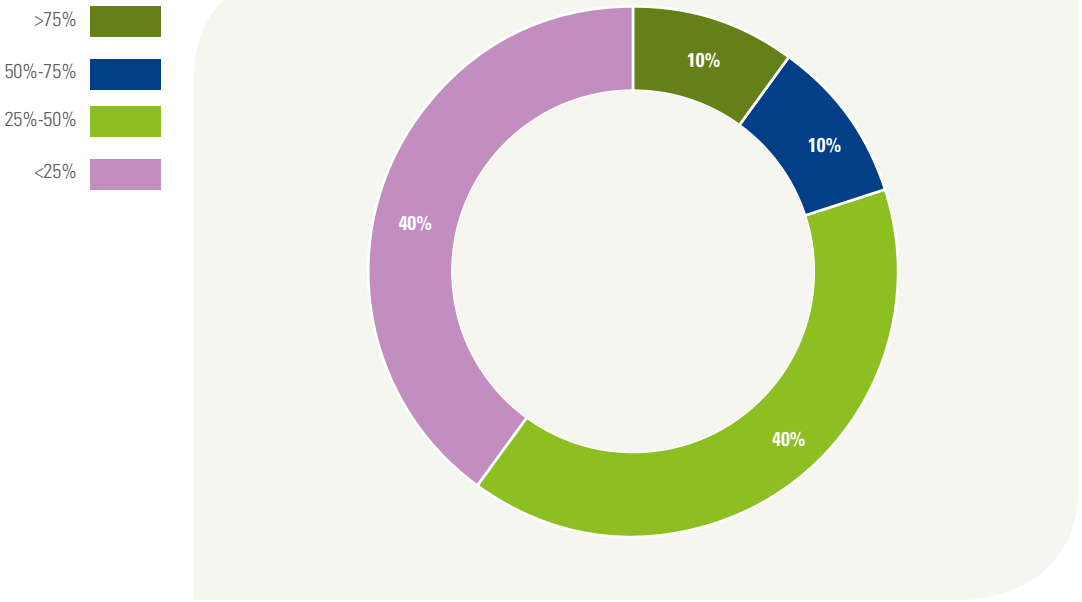
Graph 5.1.7:
If you are an "Internal Model" or "Partial Internal Model" firm, have you used only 99.5% confidence interval in your Use Test methodology, or have you considered additional confidence intervals?



Graph 5.1.7 shows that 55% of partial or internal model respondents have indicated that they will be using additional levels of confidence than just 99.5% when applying their Use Test methodologies.

Use of ICA documentation

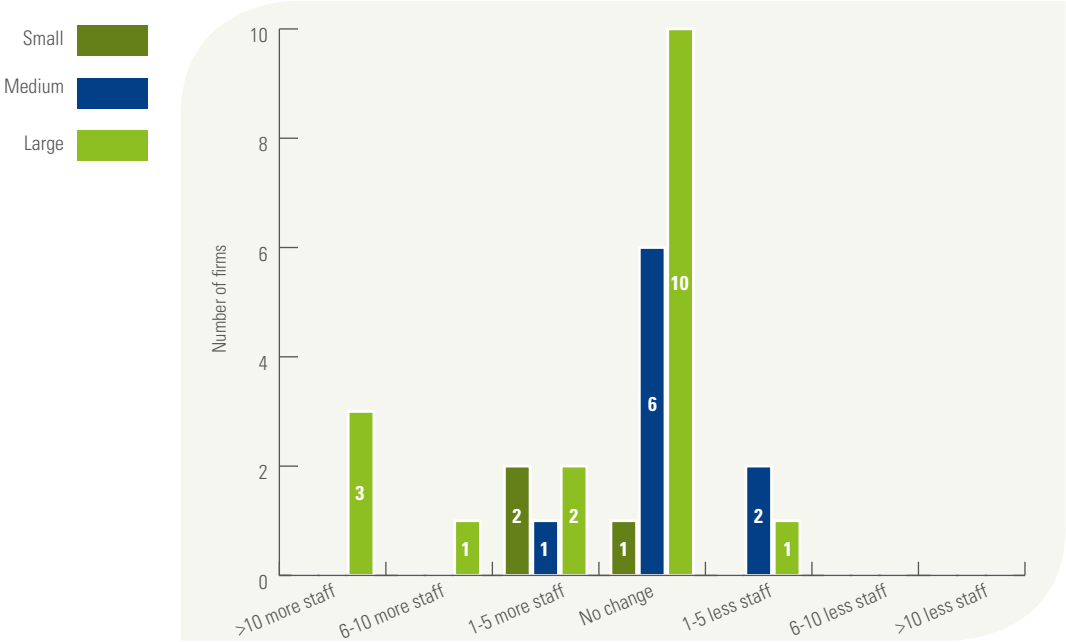
Graph 5.1.8:
How much use will you make of existing ICA documentation for Solvency II Internal Model Application purposes?



Our respondents were asked to what extent they would be making use of existing ICA documentation in their Solvency II IMAP process. Approximately 40% of firms said they would make limited use (25%-50%) of existing ICA documentation with the same proportion indicating that they would not be making much use (<25%) of such documentation.

Expected level of go live Solvency II resources

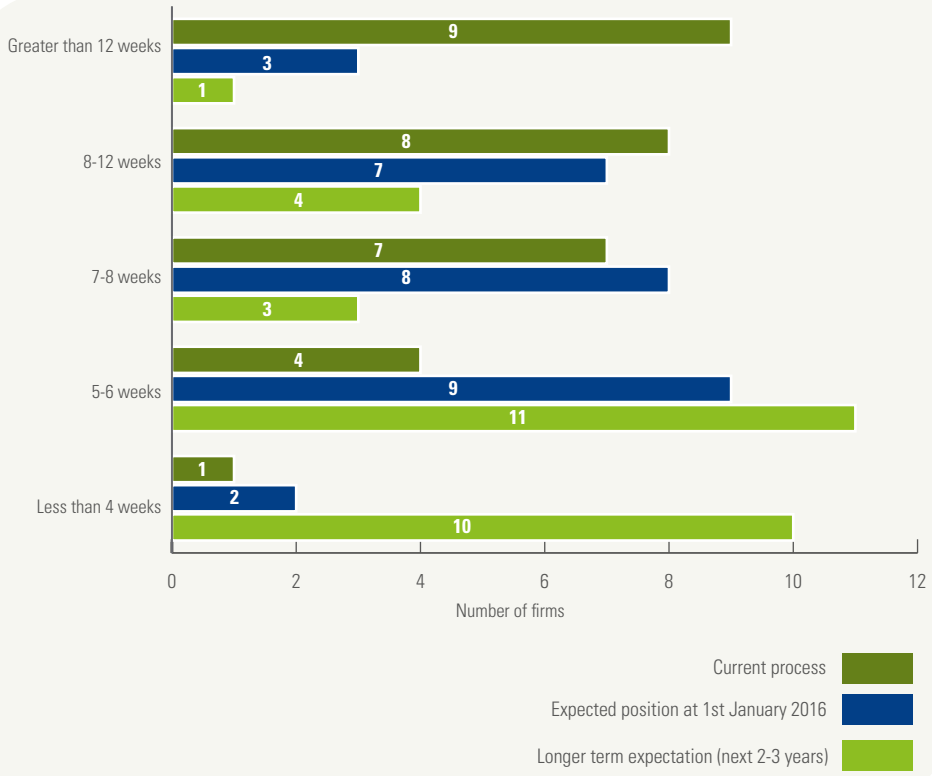
Graph 5.1.9:
How much do you expect the level of resource involved in the current Solvency II calculation process to change when you fully move to Solvency II?



The majority of firms do not expect any change in the level of resource required when Solvency II goes live. Some of the firms that indicated they will need additional resources are those that are planning on making a (partial) internal model application after the go live date.

Production time for QRTs

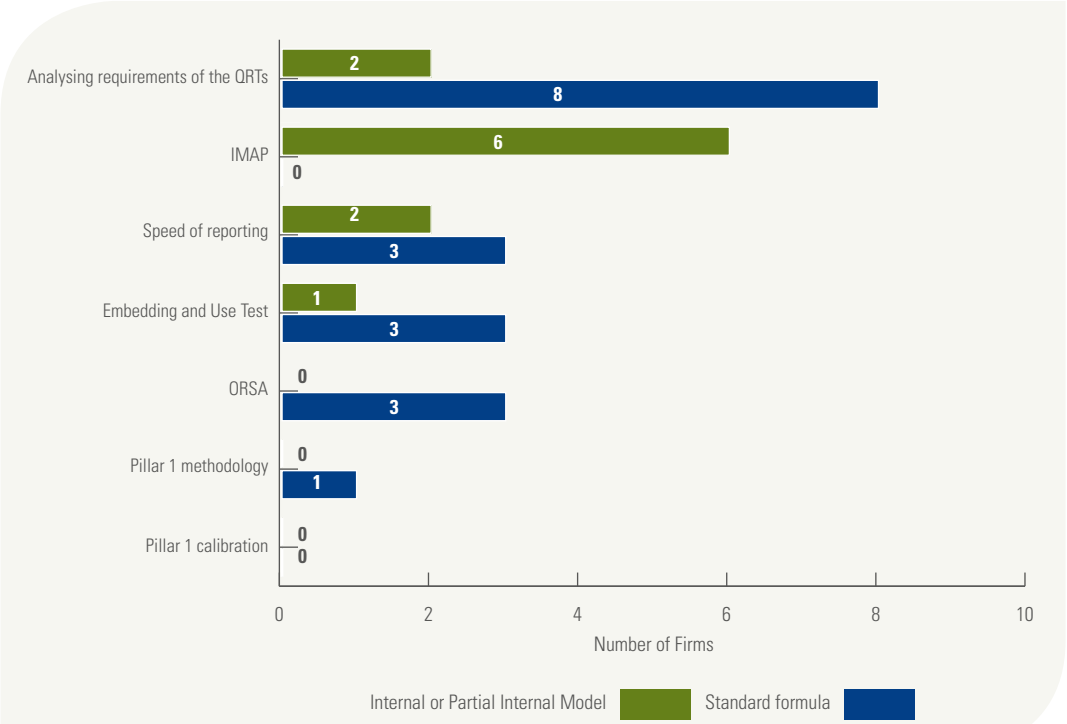
Graph 5.1.10:
How long does your Pillar 1 Balance Sheet and SCR take to produce, from production of base balance sheet to finalisation of QRT's (pre Board sign off) for the annual process?



The bulk of firms expect to reduce the production time to under 6 weeks, this would enable these companies to fully align the Q4 quarterly QRT with the annual QRT; however the graph shows that there is still further work to be done in order for companies to meet these demanding timescales.

Highest priority

Graph 5.1.11:
Which part of the Solvency II programme is your current highest priority?



Analysing requirements of the QRTs and IMAP are the current highest priorities for most firms. (Partial) Internal model firms had IMAP as the highest priority.

We also offered a free text response to 'which part of the Solvency II programme is your most difficult challenge?'. Most respondents cited the production of QRTs as the most challenging; in particular the asset QRTs, look-through requirements and mappings and standardising the production of the QRTs.

Understanding the Solvency II requirements, what the PRA are looking for and uncertainty over the regulator timescales were repeated as areas of concern.

Standard formula firms had some issues that were specific to them, which included the need to prove the appropriateness of the standard formula.

6 Technical Provisions

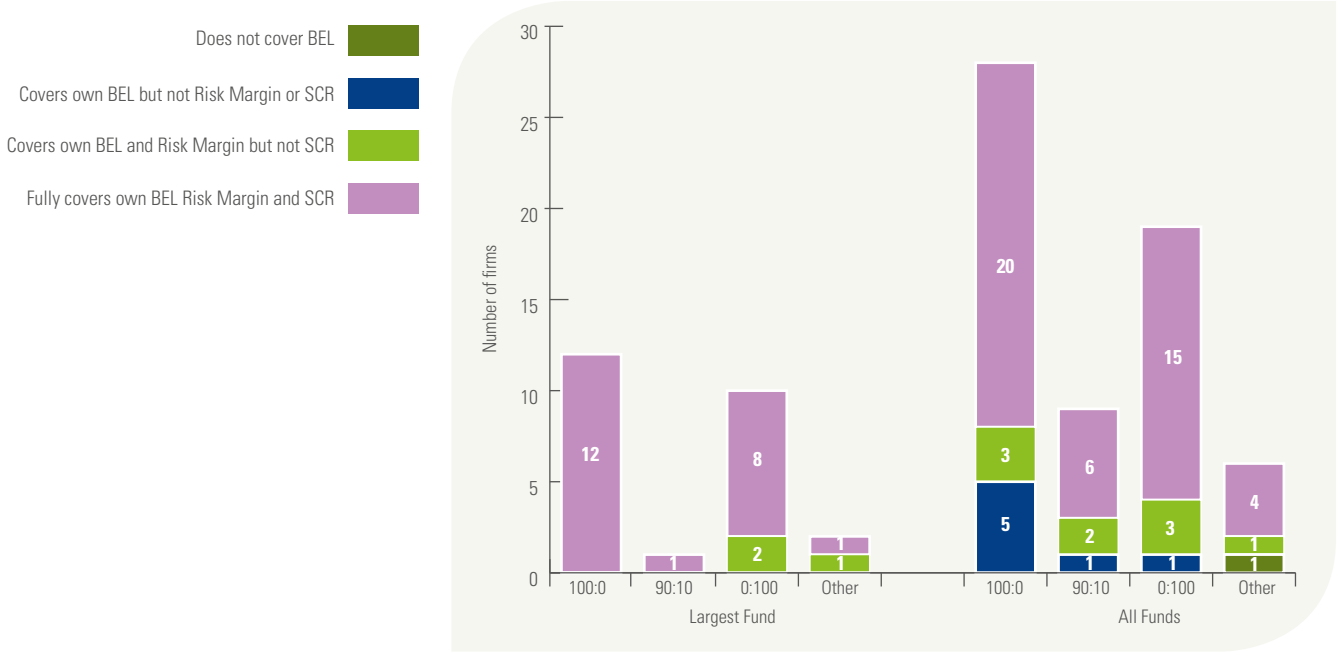
Within this section we explore how firms will determine the technical provisions in their Solvency II Pillar I balance sheet. Technical provisions comprise two components: the best estimate of the liabilities plus a risk margin and this section coves both of these. In particular we cover:

- The base balance sheet and how Solvency II is expected to impact this
- The matching adjustment
- The volatility adjustment
- Contract boundaries and management actions
- The risk margin; and
- Transitional measures

6.1 BASE BALANCE SHEET UNDER SOLVENCY II

In order to understand the impact of Solvency II on the base balance sheet, we asked firms about the coverage of technical provisions and capital for each of their funds.

Graph 6.1.1:
Coverage of technical provisions and capital



We have split the analysis above into the ownership of funds and considered separately the largest fund of each respondent as well as a combined analysis across all funds for which responses were provided.

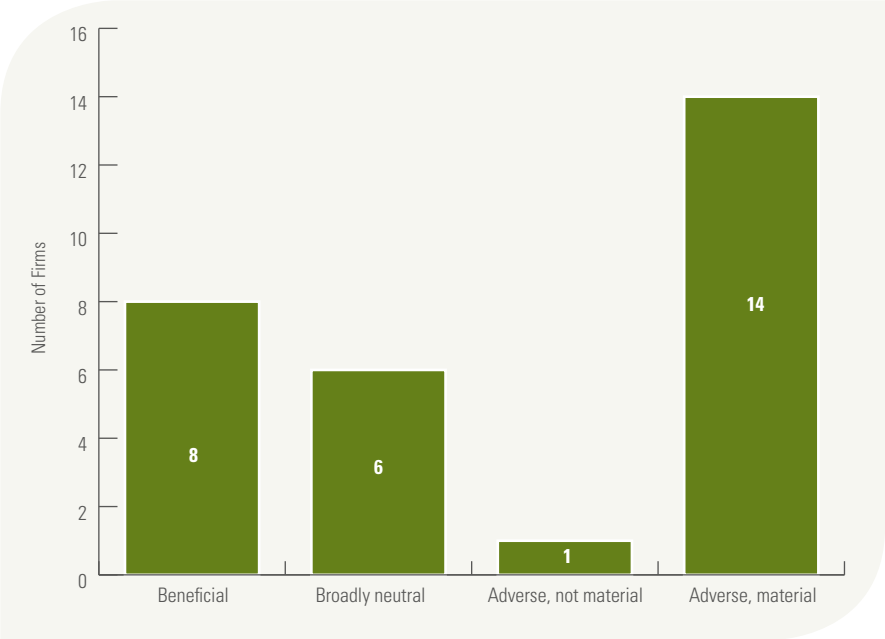
Of the respondents' largest funds, there is a fairly even split between the main groups of funds that are fully policyholder-owned and funds that are fully shareholder-owned. As can be seen, most of these funds are expected to cover their SCR, although there are three funds which are not expected to be able to cover their SCR.

Across all funds, 73% (45 out of 62 funds) are expected to cover their technical provisions and SCR, 15% (9 out of 62 funds) are expected to cover the technical provisions only and the remaining 13% are expected to have insufficient assets to cover their Risk Margin (with 1 firm not expected to be able to cover the BEL of 1 of its funds).

Impact of Solvency II

Solvency II is expected to impact firms in different ways, depending on the risk profile of the firm and how easily and quickly firms can implement management actions to improve their Solvency II position.

Graph 6.1.2:
Please indicate the overall Solvency II effect for your company by comparing: ICA Best Estimate Liability + ICA to Solvency II Best Estimate Liability + Solvency II Risk Margin + Solvency II SCR.



Graph 6.1.2 shows that approximately half of the respondents expect to find that the move to Solvency II with be either neutral or positive and approximately half expect to see an adverse impact. This split is consistent with the results in the 2014 survey. Analysing this further by size of company and we see that there does not appear to be any correlation between the size of the firm and the impact of Solvency II.

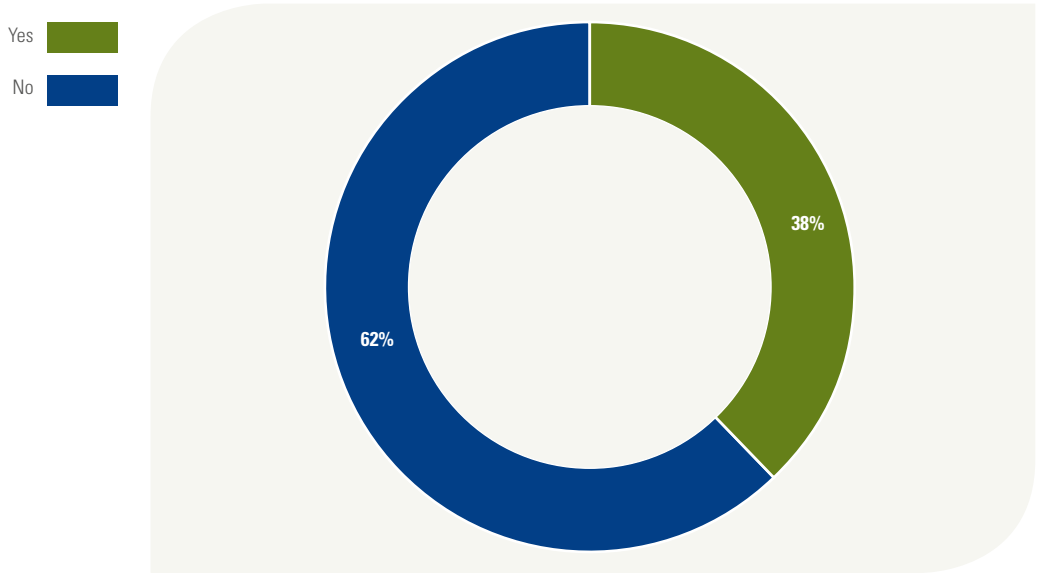
All of the respondents with sizeable annuity liabilities (bar one) expect Solvency II to have a materially adverse impact on their balance sheet. Of the 8 firms who expect Solvency II to be beneficial, 7 of these use a Standard Formula approach to determine their SCR and of the 15 firms who expect a negative impact from Solvency II, roughly half of these (8 firms) use an internal model.

6.2 THE MATCHING ADJUSTMENT

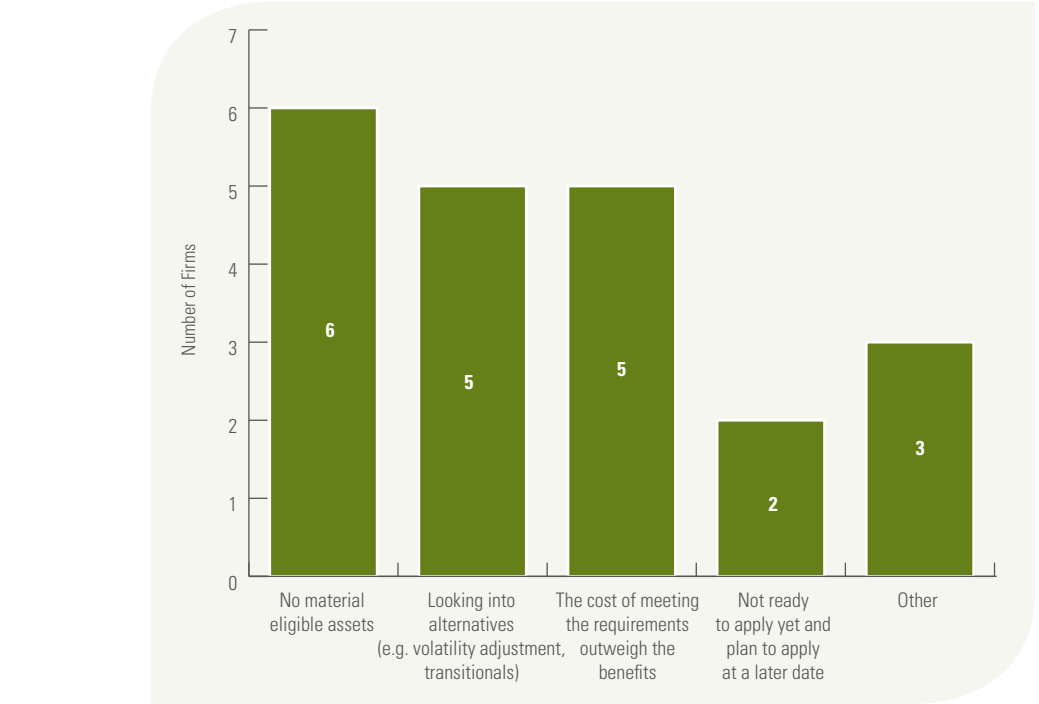
The matching adjustment is an important measure for many firms as it allows them to adjust the risk free curve used when determining the Solvency II BEL; however in order to use the matching adjustment firms need to apply to the PRA and demonstrate that they have met the requirements.

Application for the matching adjustment

Graph 6.2.1:
Are you intending to apply for matching adjustment for any of your liabilities.



Graph 6.2.2:
If you are not applying for the matching adjustment, please specify why. (More than one response was permitted).

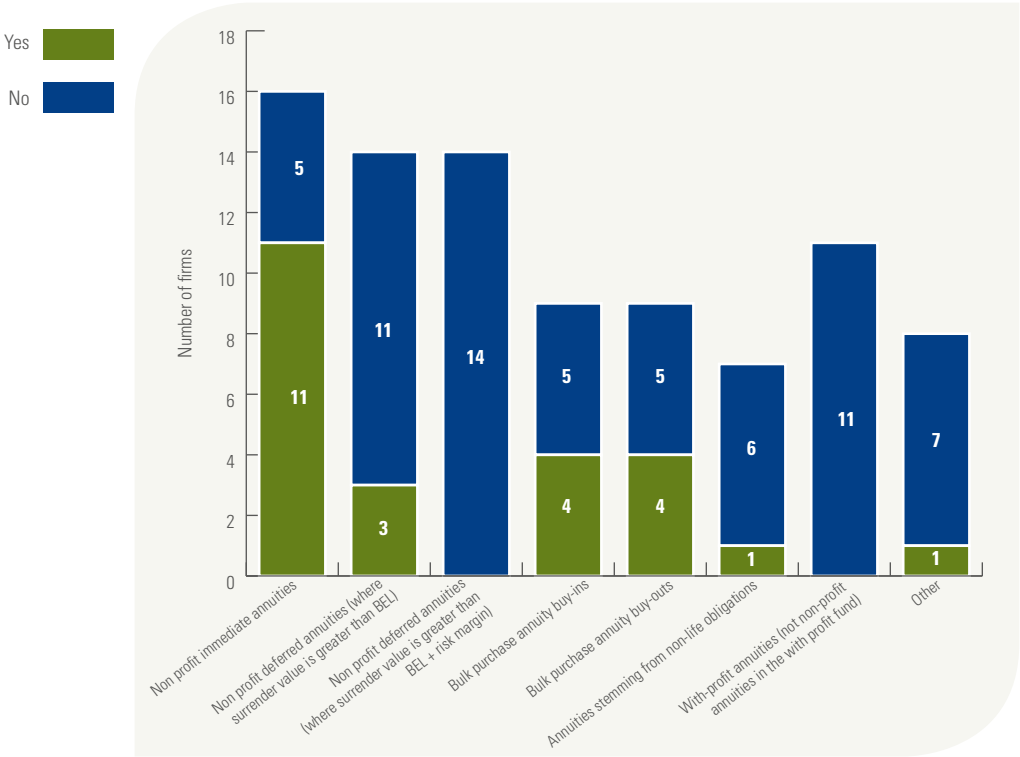


The majority of respondents (18 out of 29) are not intending to apply for the matching adjustment. Graph 6.2.2 shows that there are a broad range of reasons for this; however the main reason for not applying is the lack of eligible assets. Some of those firms not intending to apply for matching adjustments do have material annuity liabilities.

Classes of business affected by the matching adjustment

The matching adjustment is applicable to various classes of annuity business. We asked respondents about the classes of annuity business for which they intend to apply for the matching adjustment.

Graph 6.2.3:
For which of the following products do you intend to apply for matching adjustment?

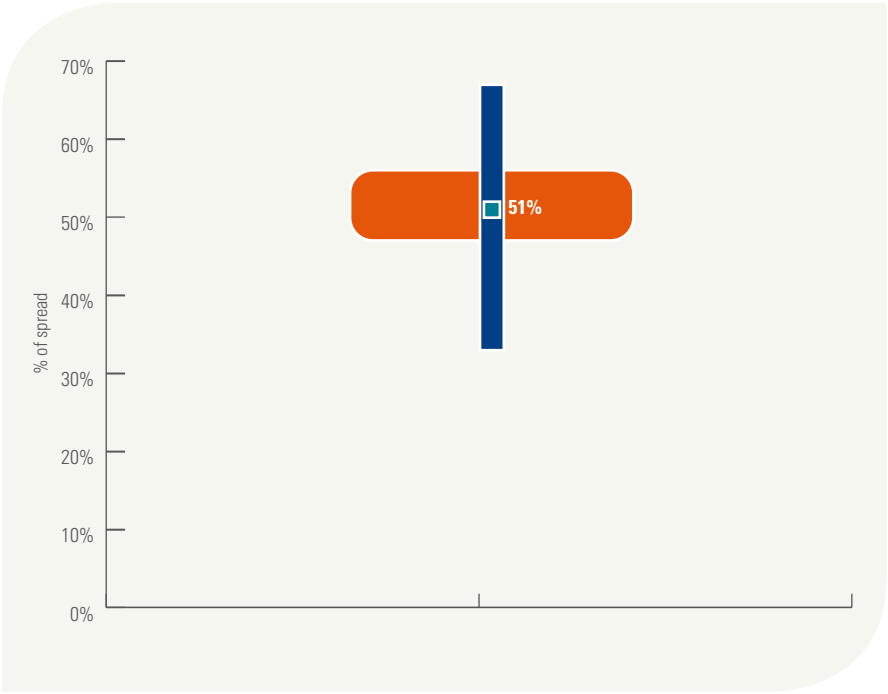


The majority of firms who will be applying for the matching adjustment will be doing so in respect of their non-profit immediate and deferred annuities.

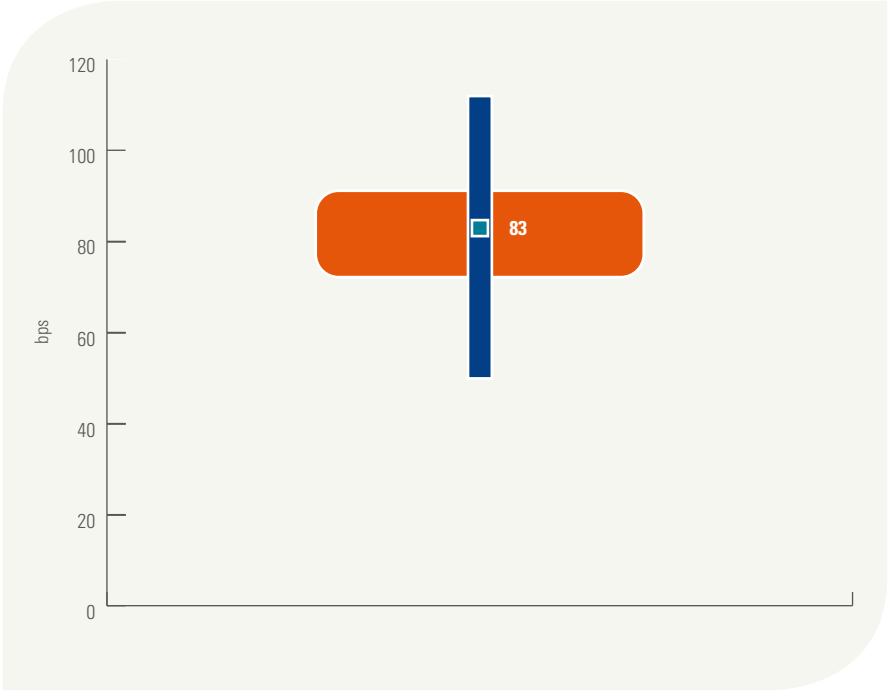
We separately asked firms about their intentions to apply for a matching adjustment for annuities within a with profit fund. The majority of respondents (74%) are not intending to apply for a matching adjustment in respect of non-profit annuity liabilities written within their with profit funds.

Benefits expected from use of the matching adjustment

Graph 6.2.4a:
What was the value of the matching adjustment as a percentage of the average gross spread on your matching assets as at YE14?



Graph 6.2.4b:
What was the value of the matching adjustment in basis points, measured relative to the average gross spread on your matching assets as at YE14?



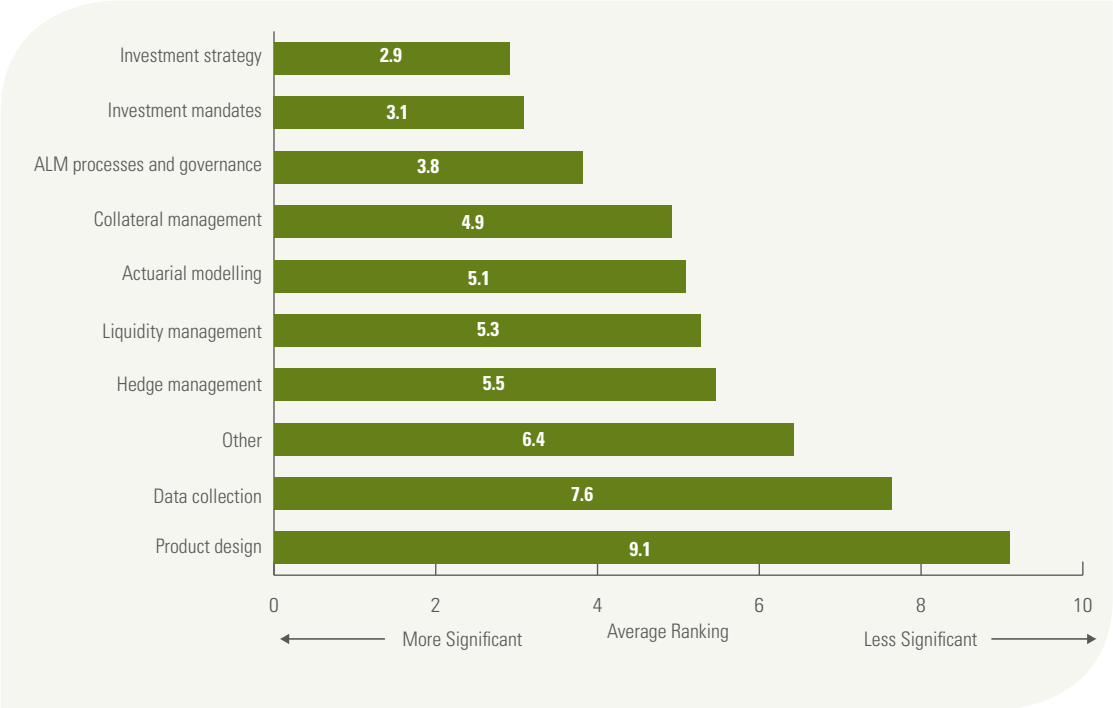
The graphs above show as a box and whisker plot the value of the matching adjustment, expressed as a percentage of the gross spread of the portfolio of matching assets (Graph 6.2.5a). Graph 6.2.5b shows the value of the matching adjustment in basis points. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

It is clear from the above graphs that there is considerable variability among respondents in terms of the value being generated by applying the matching adjustment when looking at the difference between the maximum (64% of gross spread) and minimum values (33% of gross portfolio spread).

This is to be expected however, as the benefit from the matching adjustment will depend on the credit rating, duration and type of assets held. Therefore, different portfolios of eligible assets can still generate quite different matching adjustments. It is also worth noting that these matching adjustment figures are based on the YE14 figures, which is prior to EIOPA updating the fundamental spread calculation.

Changes required in preparation for the matching adjustment

Graph 6.2.5:
Please rank the significance of changes required in the following areas to prepare for matching adjustment?



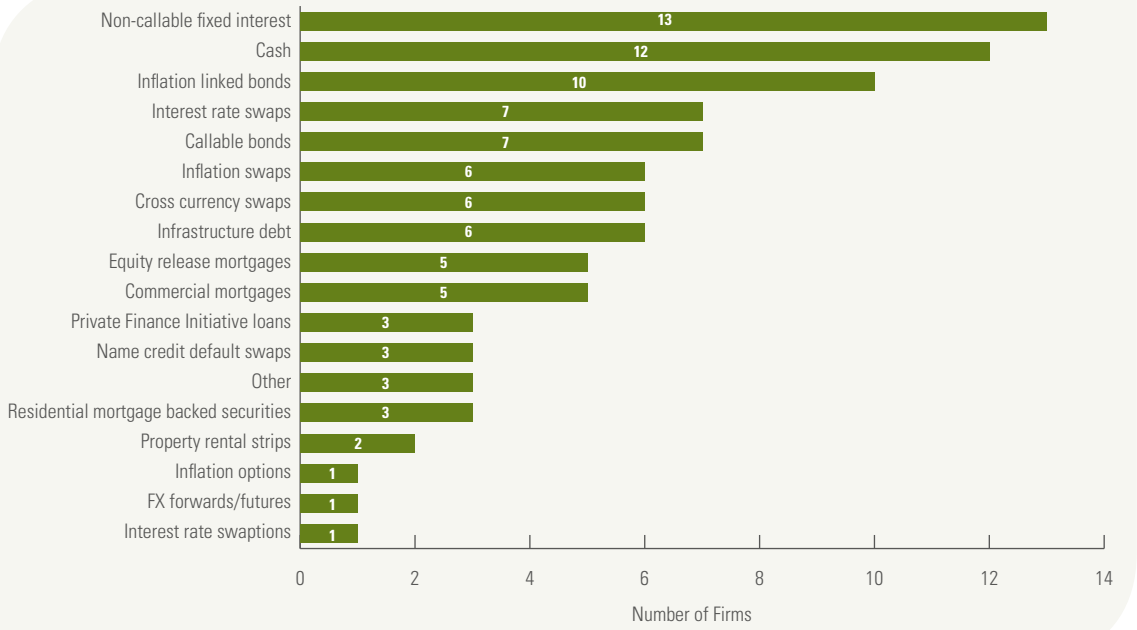
Meeting the relevant regulatory requirements that accompany a matching adjustment application requires operational changes to be made in core life office and investment management functions. We asked respondents to rank the areas where they thought will involve the most significant changes, with 1 being the most significant.

The graph shows that our respondents believe that the most significant changes will be felt in the areas of investment mandate and investment strategy specification and in asset/liability management (ALM) frameworks. Those areas least likely to be affected by matching adjustment requirements are those of product design and data collection.

This is in line with expectations as companies look to gain maximum benefit from the matching adjustment by creating matching adjustment optimised asset portfolios and instructing investment managers to invest in a matching adjustment eligible manner.

Asset classes contained in the matching portfolio

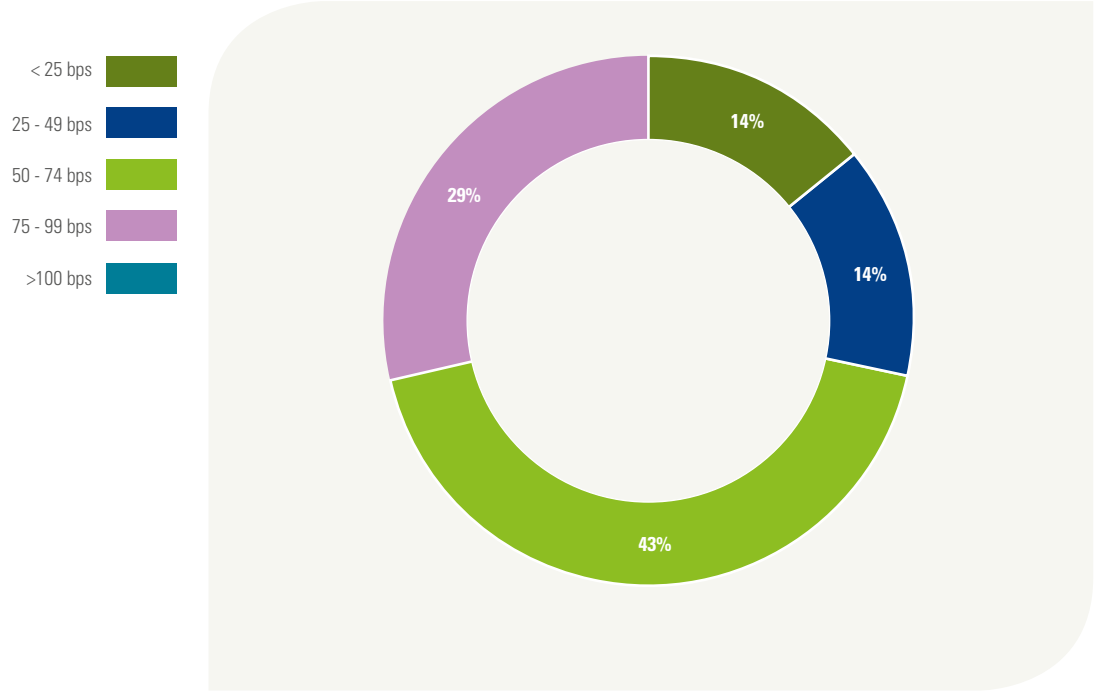
Graph 6.2.6:
Which of the following asset classes do you intend to include in your matching adjustment portfolio, either directly or through restructuring the asset?



We asked those respondents intending to apply for the matching adjustment to indicate the nature of the asset classes to be included in their matching portfolios. As expected, the asset classes that are least controversial in terms of matching adjustment eligibility are included by most firms. A small number of companies are looking to include assets where the eligibility is less clear. For some of these assets, they will be considered eligible via a restructuring solution rather than a direct investment in the asset – all 5 companies who noted that they will include equity release mortgages also noted that they will do so via a restructure. We also asked where the variable/equity tranche of the restructured asset would be held – 3 of the 5 will hold it in the same entity, outside of the matching adjustment portfolio and the other 2 will hold it elsewhere in the Group.

We have noted in the market that companies became more conservative in their approach to asset eligibility between their pre-application and their final application. Therefore, there is potential that thinking has moved on for some companies in terms of the eligibility criteria.

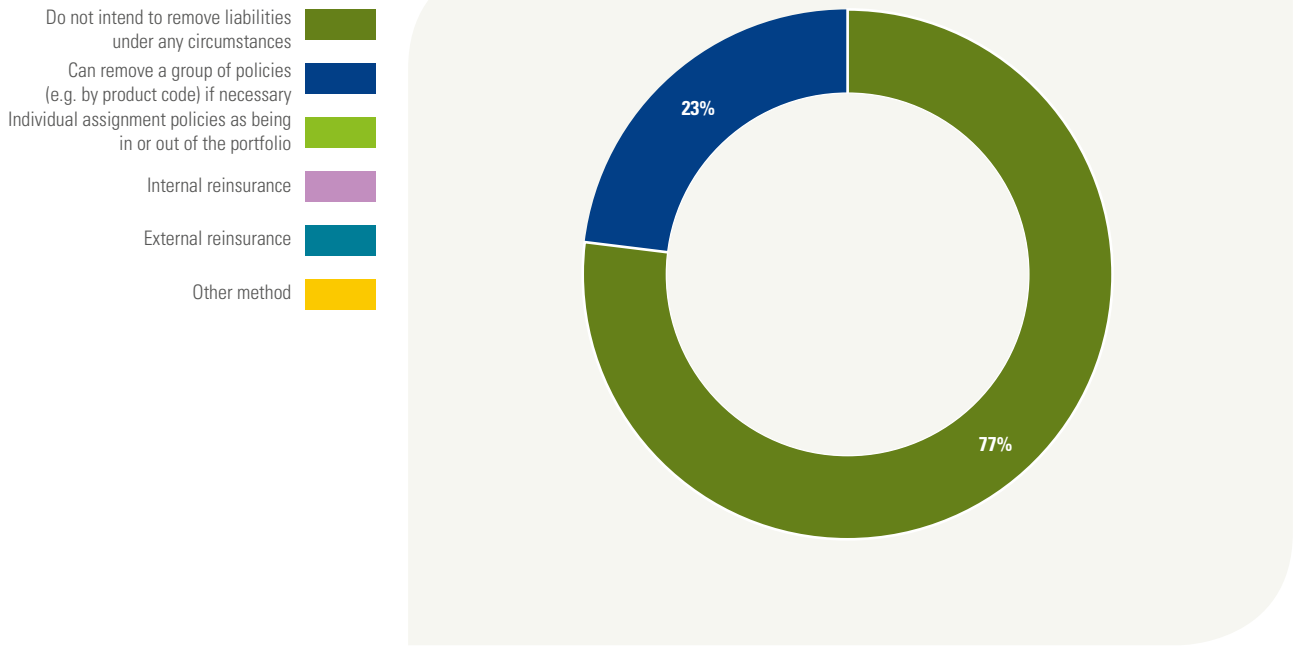
Graph 6.2.7:
What is the maximum level of make whole spread you consider to make an A-rated bond eligible for the matching adjustment?



Bonds that are callable but have a make whole or spens clause may be considered eligible if the clause ensures that the amount received by the insurer is sufficient to be able to reinvest in an asset of the same credit quality and receive the same cashflows. Assets that have a modified spens clause will provide to the insurer, when called, the future cashflows discounted at a reference rate (typically gilts) plus X%. The ability of the insurer to replace the asset will depend on the level of X. No regulatory guidance is given as to what level should be used and therefore companies have assessed, for each rating, the maximum make whole spread (i.e. value of X) that they will allow an asset to have in order to be considered eligible.

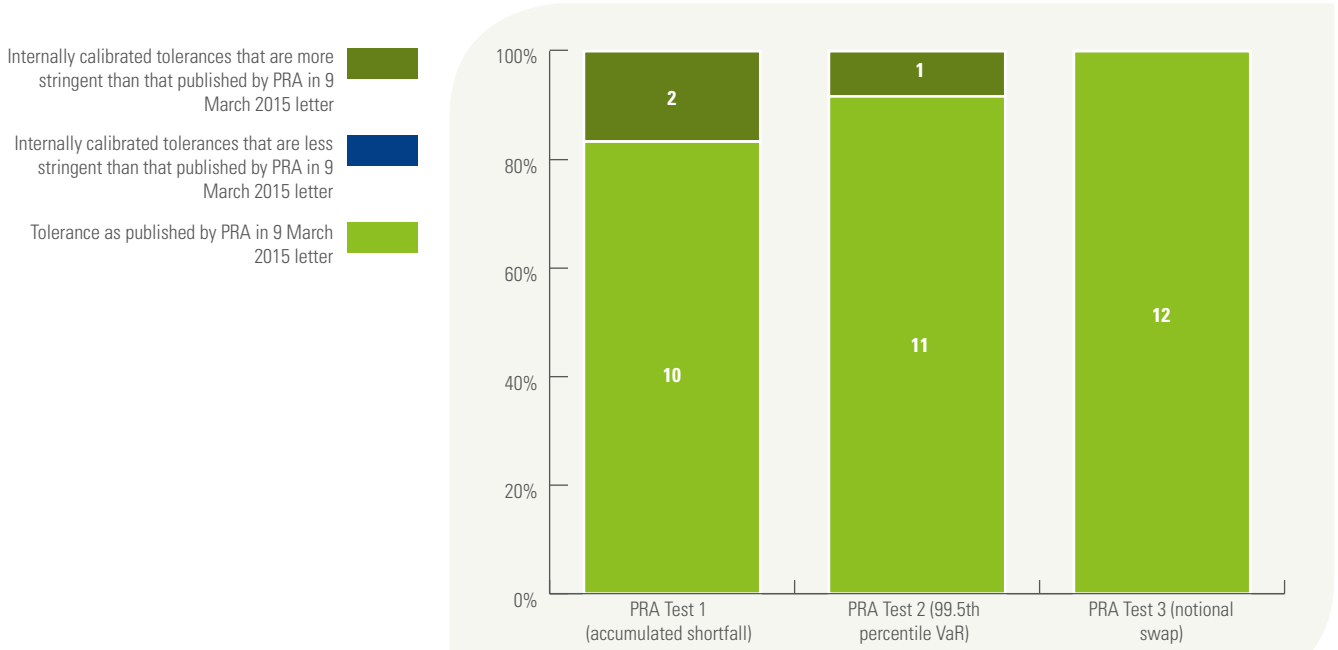
The above graph shows the responses only for A-rated assets. As can be seen, there is a wide range of answers. These may not represent the values submitted to the PRA in the final application and through the PRA's pre-application exercise, these values are likely to have been aligned more closely across the industry.

Graph 6.2.8:
How do you intend to remove liabilities from the matching adjustment portfolio in the event that assets become insufficient to cover BEL?



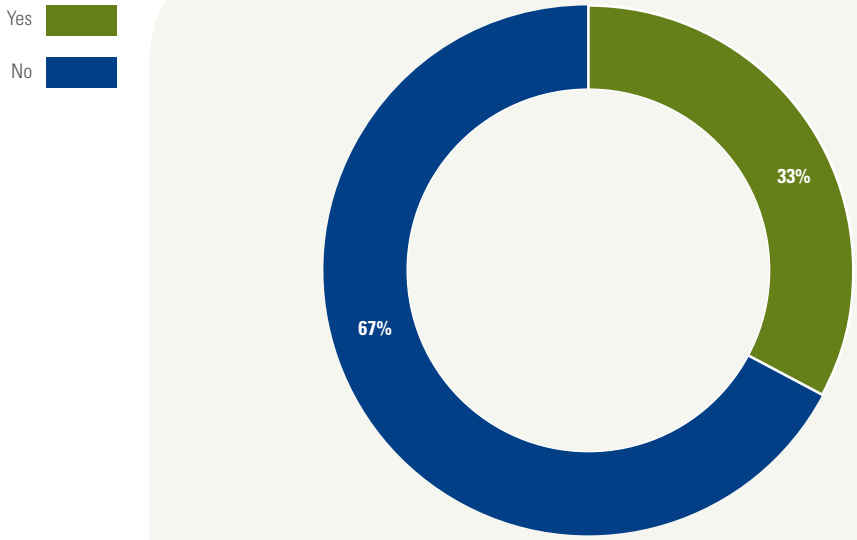
The majority of respondents indicated that they did not intend to remove liabilities under any circumstances. The remaining respondents indicated that they could remove a group of policies if necessary.

Graph 6.2.9:
For each of the PRA matching adjustment matching tests please can you state if you plan to use the PRA's tolerance or a higher or lower one?



Graph 6.2.9 shows that across the three Matching Adjustment tests prescribed by the PRA, the vast majority of respondents indicated that they would perform the tests using a tolerance level in line with the level specified in the PRA letter of 9 March 2015.

Graph 6.2.10:
Do you intend to apply any additional cash flow matching tests in addition to those required by the PRA?

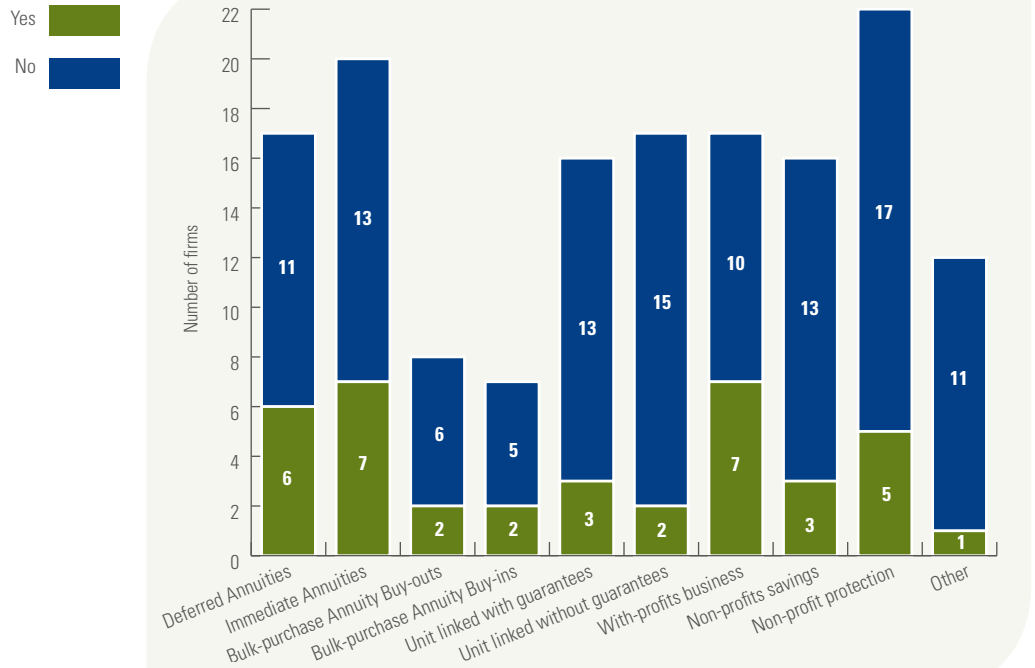


Some companies may deem that the tests applied by the PRA do not cover every aspect of matching and therefore choose to consider more tests. The responses show that a third of companies do intend to consider additional tests.

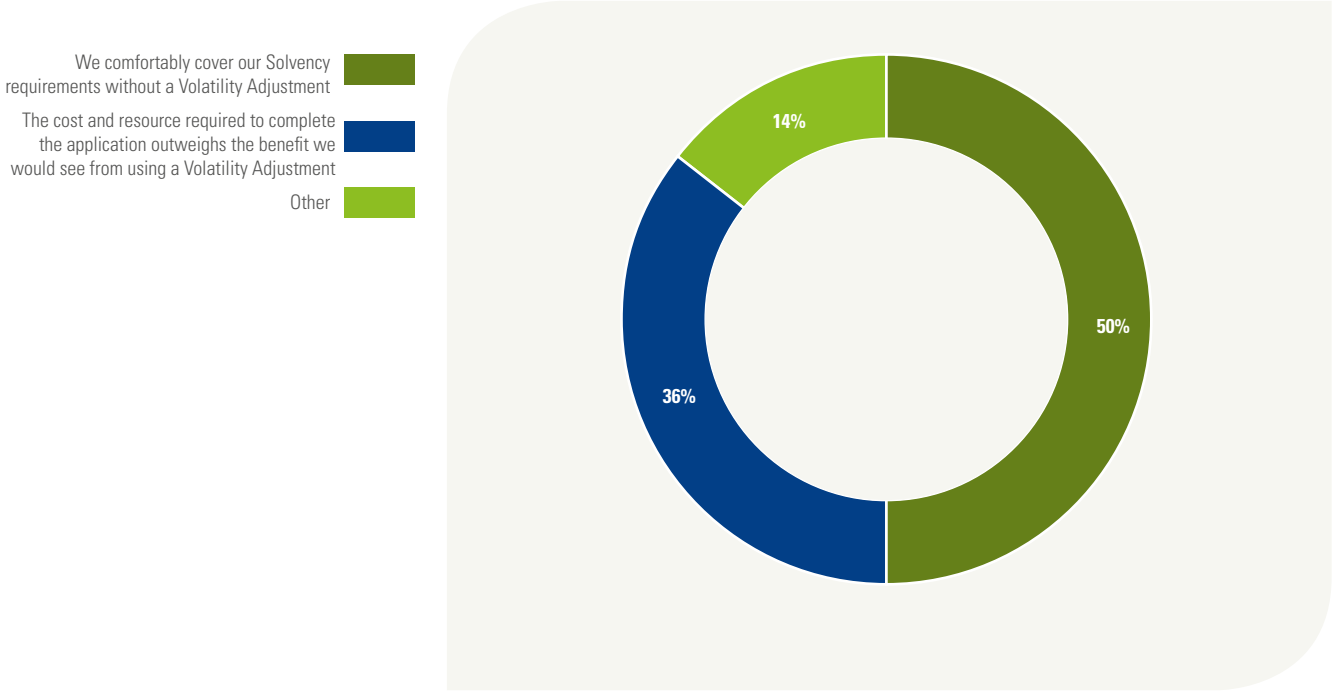
6.3 THE VOLATILITY ADJUSTMENT

The volatility adjustment can only be used on products on which a matching adjustment is not applied. Use of the volatility adjustment has to be approved by the PRA and would result in an adjustment (most likely an increase, but in certain circumstances could be a decrease) to the risk free curve used to determine the Solvency II BEL.

Graph 6.3.1:
For which of the following types of business do you intend to apply for a Volatility Adjustment?



Graph 6.3.2:
If you are not applying for the volatility adjustment, why have you chosen not to apply?



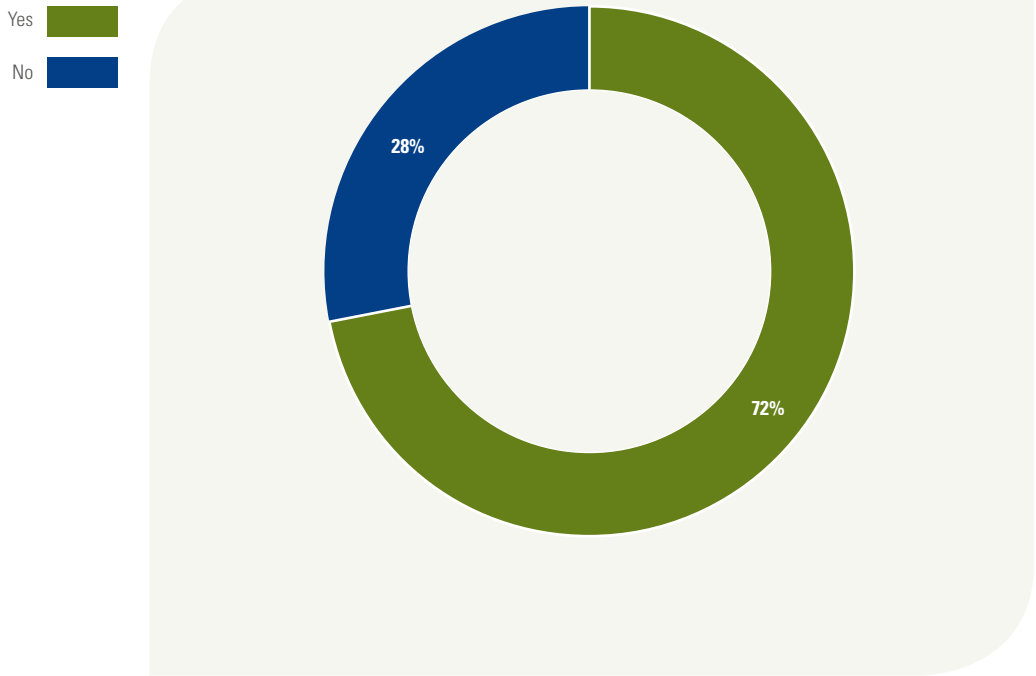
Overall it can be seen that many respondents indicated that they would not be applying for the volatility adjustment. The majority of those respondents intending to apply for the volatility adjustment said that they would do so in respect of their immediate and deferred annuity business. We have noted in the market that companies have applied for the volatility adjustment on immediate annuity business as a contingency in case they do not receive matching adjustment approval. Other than annuity business, the main product class where a volatility adjustment is being applied for is with profit business.

The majority of respondents not intending to apply for the volatility adjustment said that the main reason for not applying was that they comfortably cover their solvency requirements without the need for a volatility adjustment.

6.4 CONTRACT BOUNDARIES AND MANAGEMENT ACTIONS

In this section, we asked firms about their interpretation and application of the contract boundary rules and the number and types of management actions that they assume in their BEL and capital calculations.

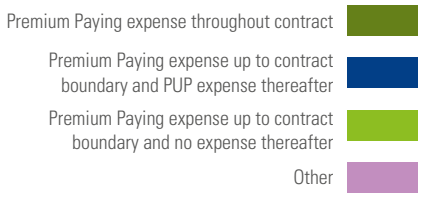
Graph 6.4.1:
Do you assume a short contract boundary for any of your business?

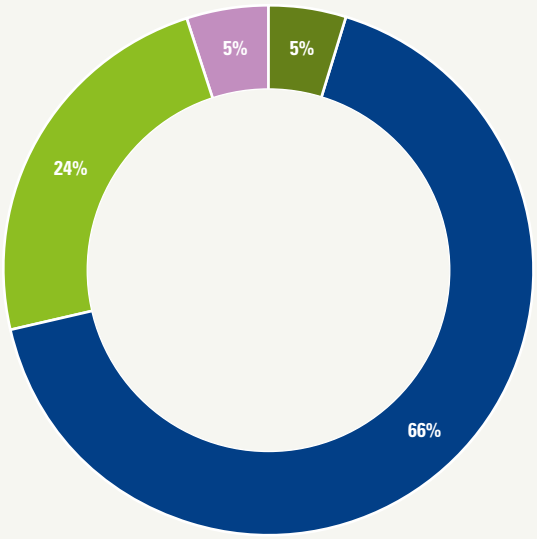


We asked firms whether they assumed a short contract boundary on at least one of the classes of their business when calculating BEL. The majority of respondents (21 out of 29) said that they did.

Expenses assumed in contract boundary calculations

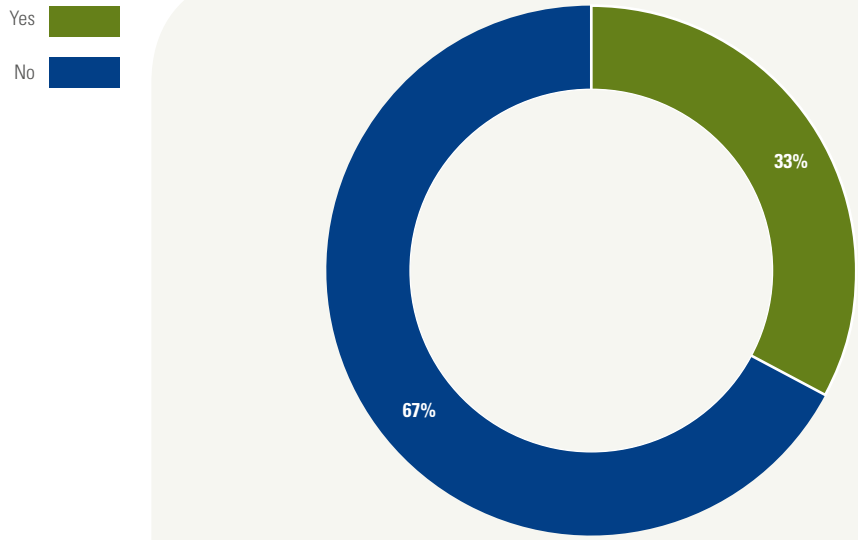
Graph 6.4.2:
What level of expense is assumed in contract boundary calculations where short contract boundaries apply?





In the majority of cases, premium paying expenses will be projected up to the contract boundary with the paid up expense being projected from that point onwards. It is interesting to note, however, that different approaches are being used and therefore, even where two firms interpret the contract boundary rules in the same way, the impact on the BEL will be different. One possible reason for using the premium paying expense throughout is because the company does not have any paid-up policies and hence do not having a separate paid-up expense assumption.

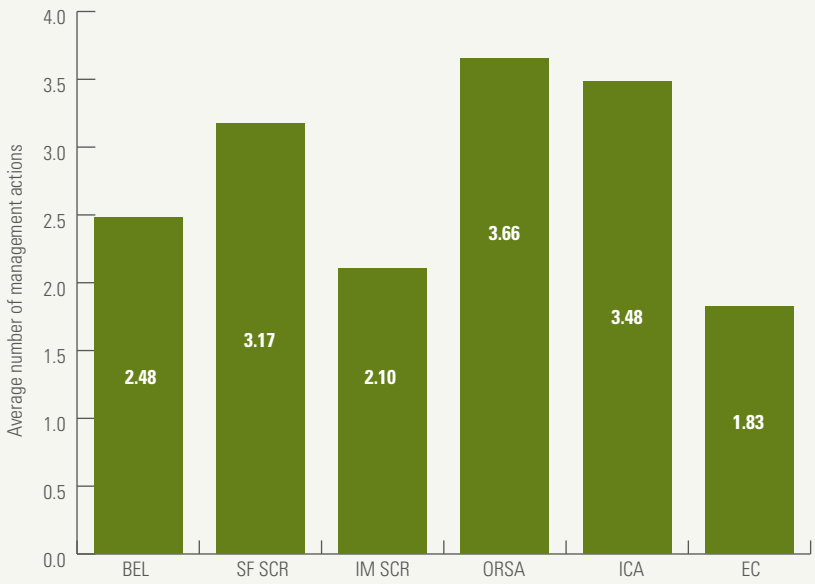
Graph 6.4.3:
Are you using the DWP charge cap argument to justify a long contract boundary for contracts that this applies to?



In respect of classes of business to which the DWP charge cap applies, less than half (33%) of respondents affected by this said that they would use the DWP charge cap as an argument to justify their use of long contract boundaries. This argument is that policyholders are being protected from increases in charges as a result of the cap, and therefore are gaining a discernible insurance benefit. We are aware that the PRA has accepted this argument for a number of firms.

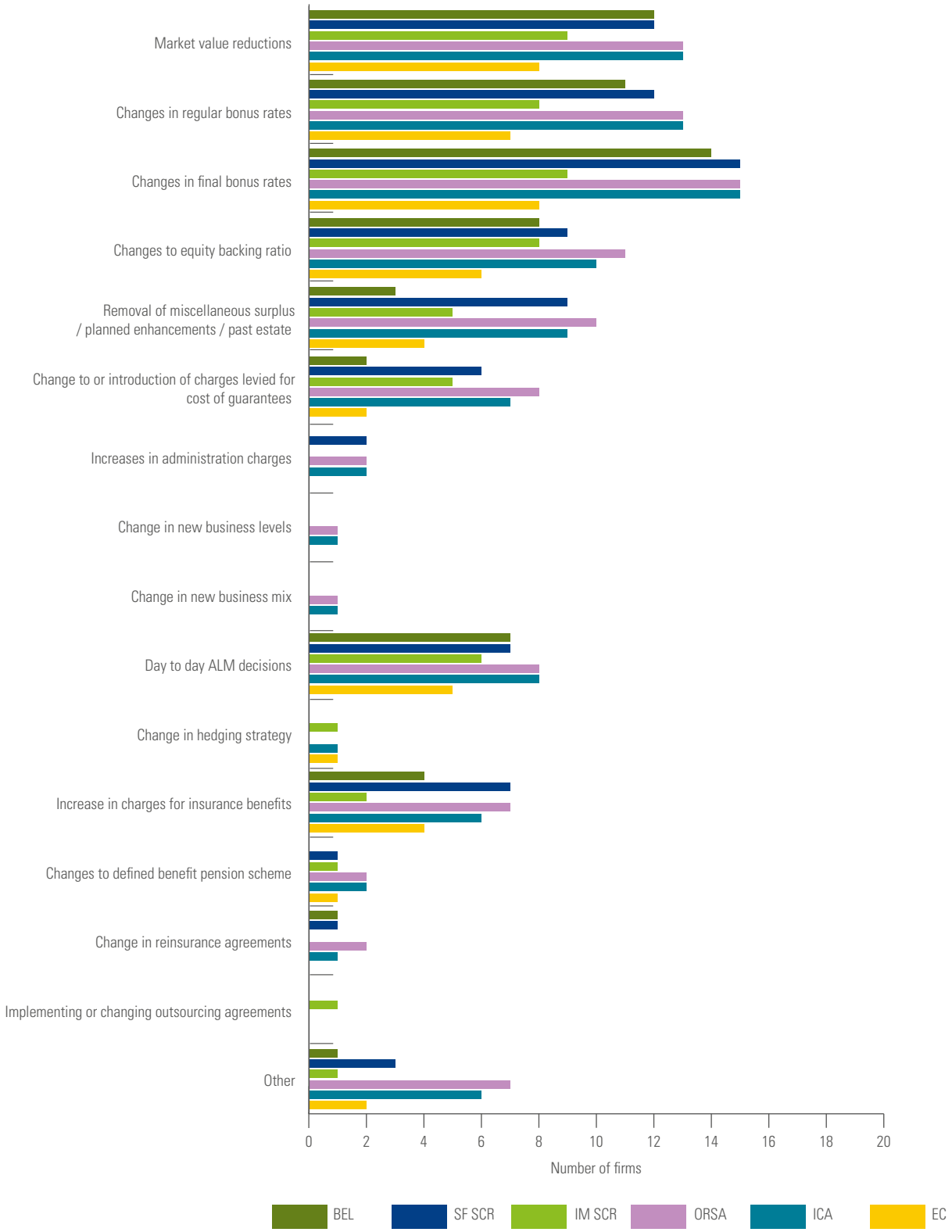
Management Actions

Graph 6.4.4a:
Average number of management actions

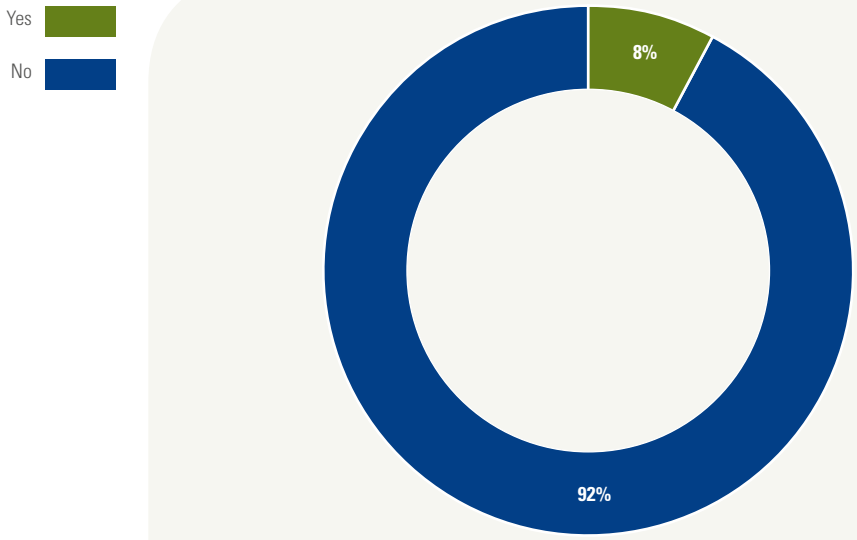


The use of management actions in the calculation of both BEL and required capital amounts has received considerable attention in recent months as firms try to look at all the permissible levers at their disposal to efficiently manage their balance sheet and solvency position. Responses to this year's survey show that the ORSA and the ICA assessment would see the highest average number of management actions being exercised, with the fewest number (on average) being exercised as part of the calculation of Economic Capital.

Graph 6.4.4b:
Which management actions are assumed in the BEL and the capital measures listed?



Graph 6.4.5:
Does your ability to apply future management actions mean that you have a zero SCR for with-profits business (excluding operational risk)?



We asked respondents whether the application of management actions means that they have a zero SCR for with-profits business other than operational risk.

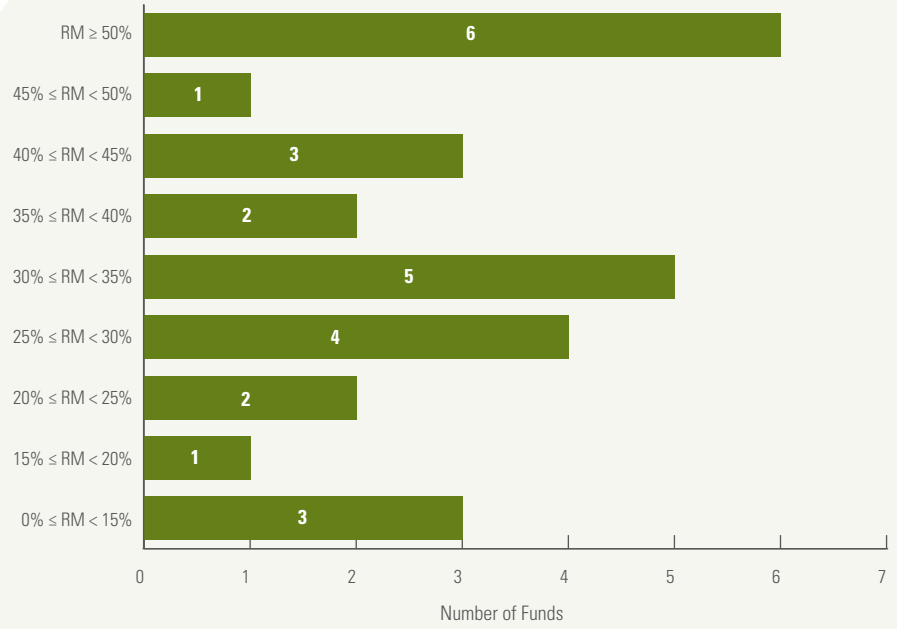
Under Solvency II, the adjustment for the loss absorbency of technical provisions allows a firm to reduce the SCR by the amount of loss absorbency i.e. the discretionary element of the BEL that can be removed if a stress scenario occurred. If the discretionary element of the BEL is greater than the Basic SCR then firms can report a zero SCR other than the SCR for operational risk which is added to the Basic SCR after the adjustment for loss absorbency of technical provisions is applied.

The response was similar to last year with only a small number of firms indicating that they expect they will have a zero SCR once management actions are allowed for under Solvency II.

6.5 RISK MARGIN

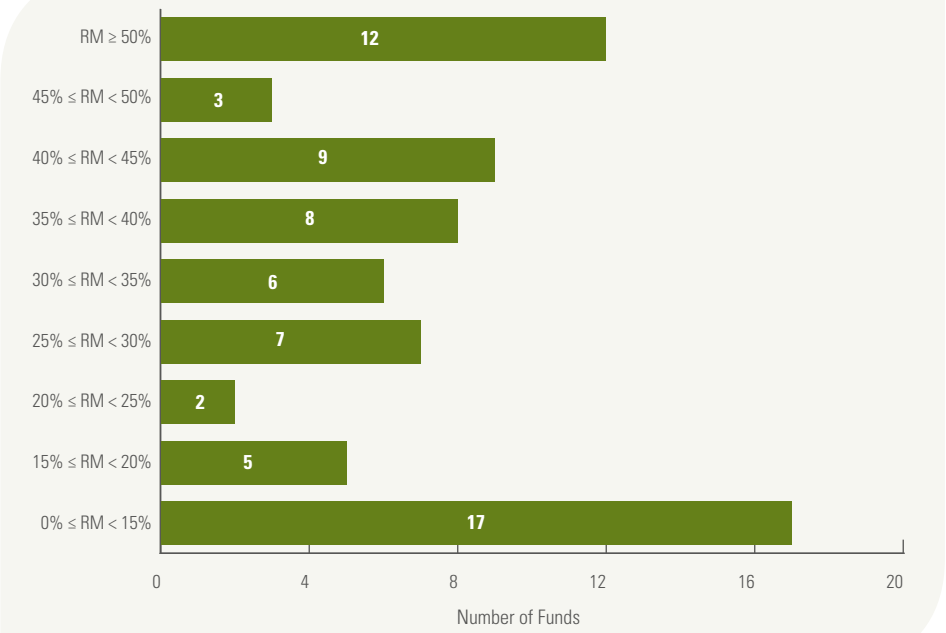
The Solvency II technical provisions are made up of the BEL and a risk margin. The risk margin is added to ensure that the technical provisions would be sufficient to compensate another firm for taking on the insurance obligations of the firm.

Graph 6.5.1a:
What is the proportion of your risk margin to your post-diversification SCR for your largest fund?



We asked respondents what their Solvency II risk margin as a proportion of SCR is for their largest fund. As the graph shows, we received a wide range of responses. As the cost of capital is defined as 6%, the variability is due to differences in the types of business sold, the run-off methodology used, as well as differences in the run-off profile driven by the demographics of the book. We are aware that a number of firms are using different techniques, the most common being a risk driver approach which can be either fixed or time dependent. Other approaches taken include using proxies such as BEL or assets as well as a full projection of the base and stressed balance sheet.

Graph 6.5.1b:
What is the proportion of your risk margin to your post-diversification SCR for your 5 largest funds?

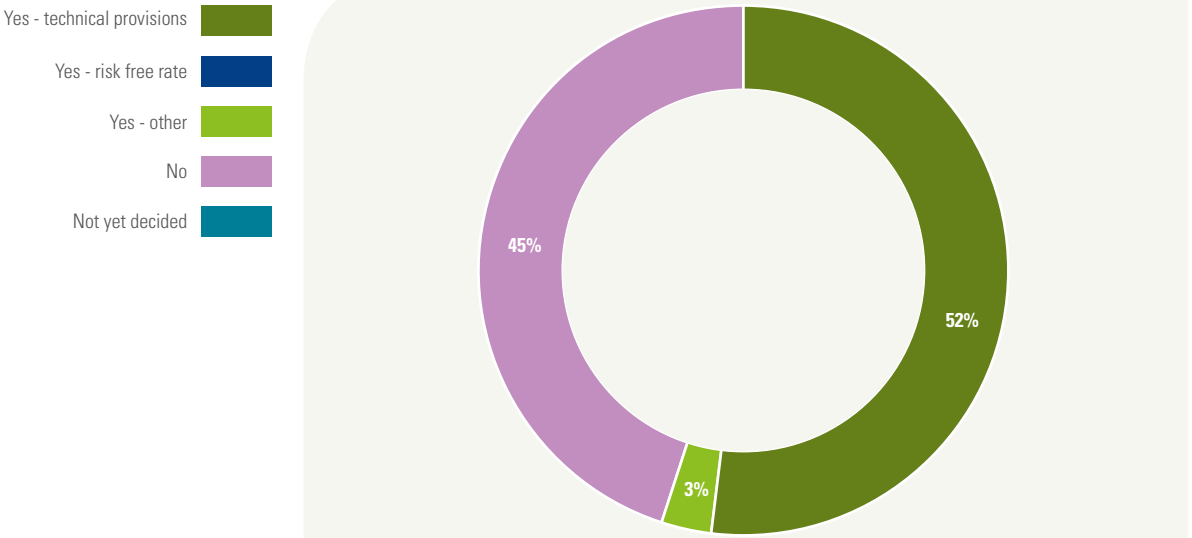


Extending the assessment of risk margin across firms' five largest funds there is a substantial increase in the number of funds with a risk margin less than 15% of the SCR.

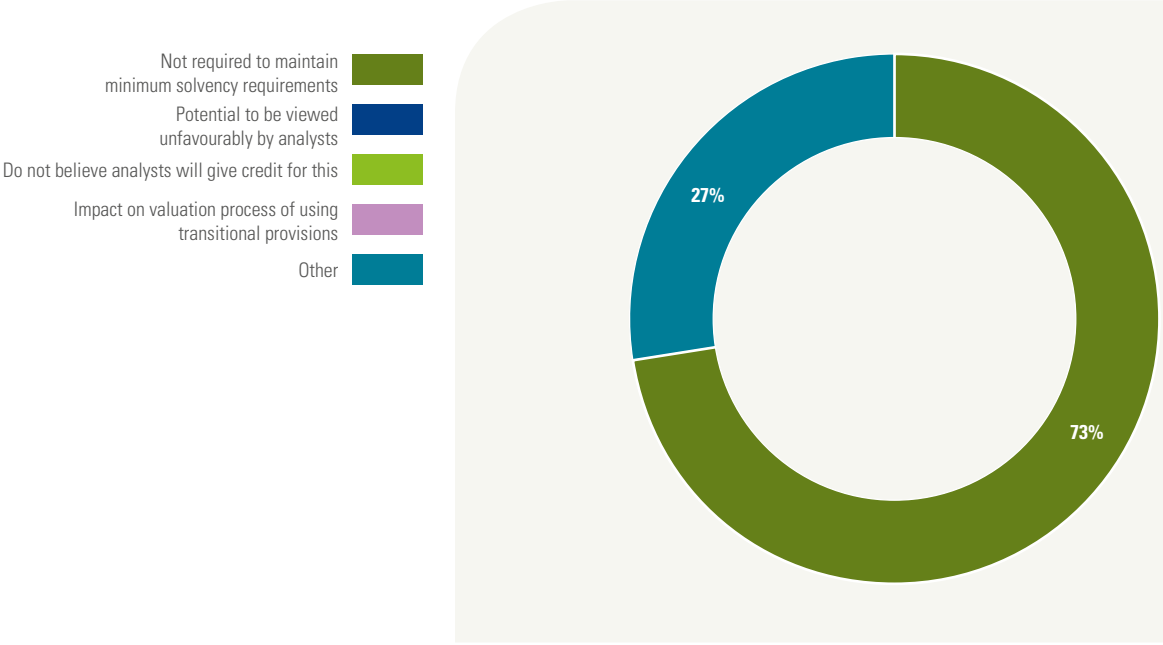
6.6 TRANSITIONAL MEASURES

Solvency II includes transitional measures whereby the risk-free interest rates or the technical provisions can be phased in over up to 16 years. In this section we asked firms whether they intended to apply to use transitional provisions and the primary reason underlying their decision. We asked firms what the anticipated impact of transitional measures would be and how they expected the transitionals to run off over time.

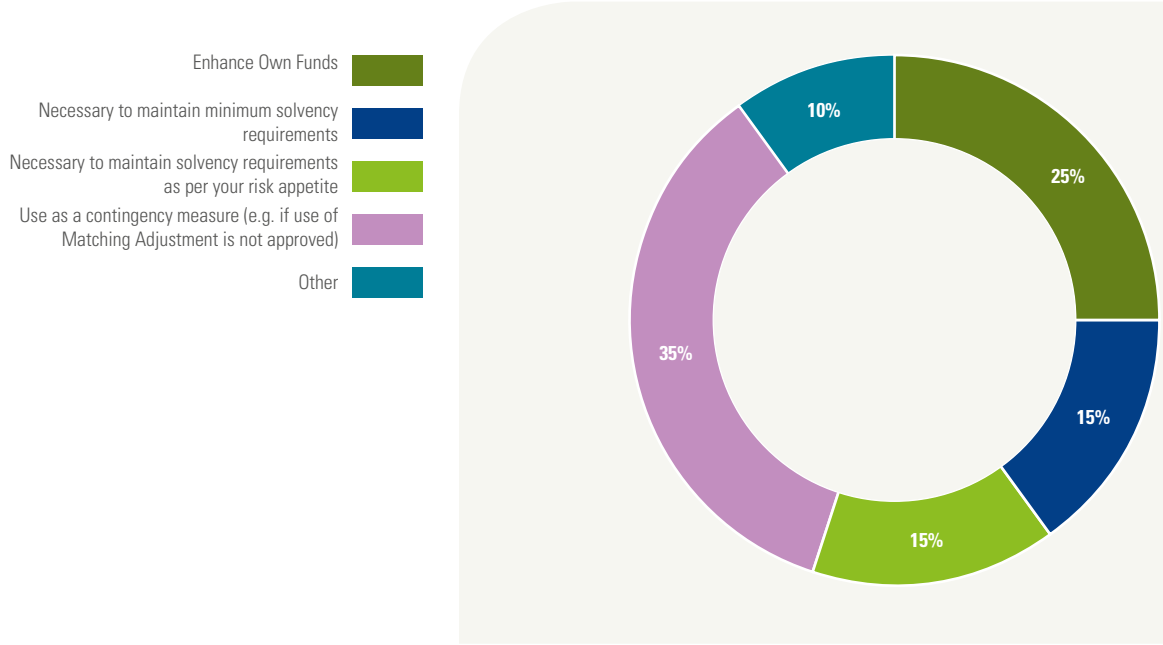
Graph 6.6.1:
Have you applied to use, or do you intend to apply to use transitional provisions?



Graph 6.6.2:
If you are not using transitionals, what is your primary driver for non-use of transitional provisions?

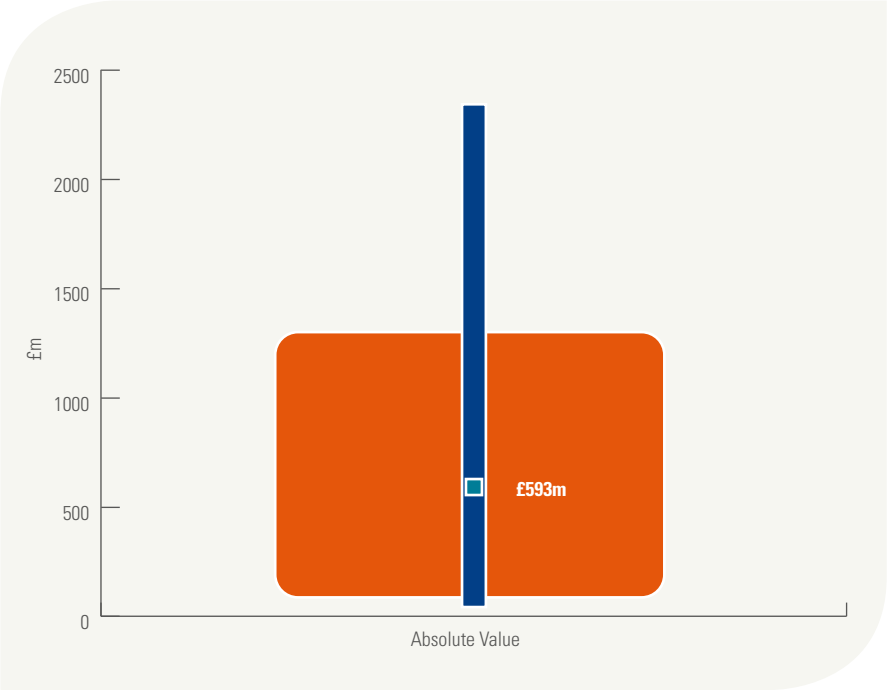


Graph 6.6.3:
If you are planning to use transitionals, what is your primary driver for the use of transitional provisions?

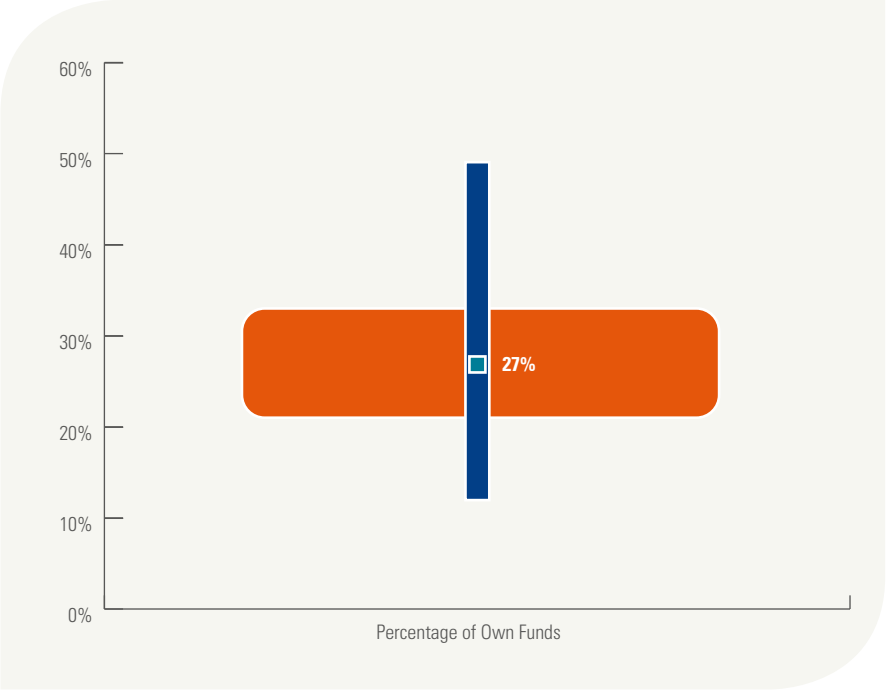


45% of firms indicated that that they will not make use of transitional measures, citing the fact that such measures will not be required to maintain minimum solvency requirements as the main reason for opting for non-use. When asked what the primary motivation is for using transitional measures, the 35% of respondents who will opt in said that transitional provisions would be used as a contingency solution, for example, should their Matching Adjustment application be disapproved.

Graph 6.6.4a:
What is the benefit from using transitional provisions on Own Funds?

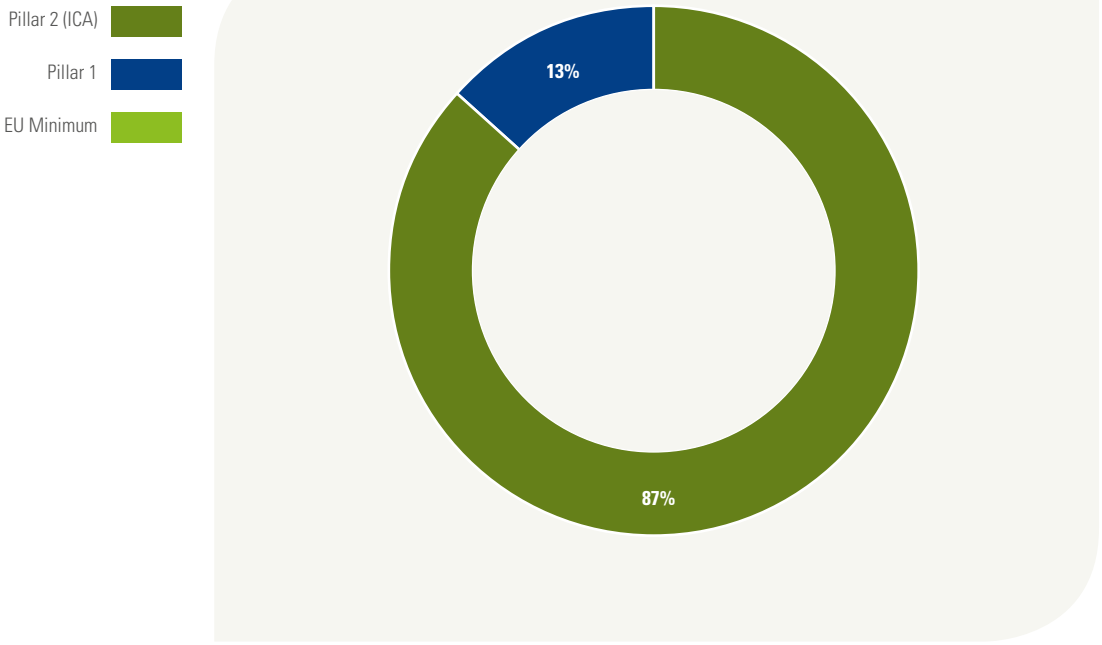


Graph 6.6.4b:
What is the benefit from using transitional provisions on Own Funds?



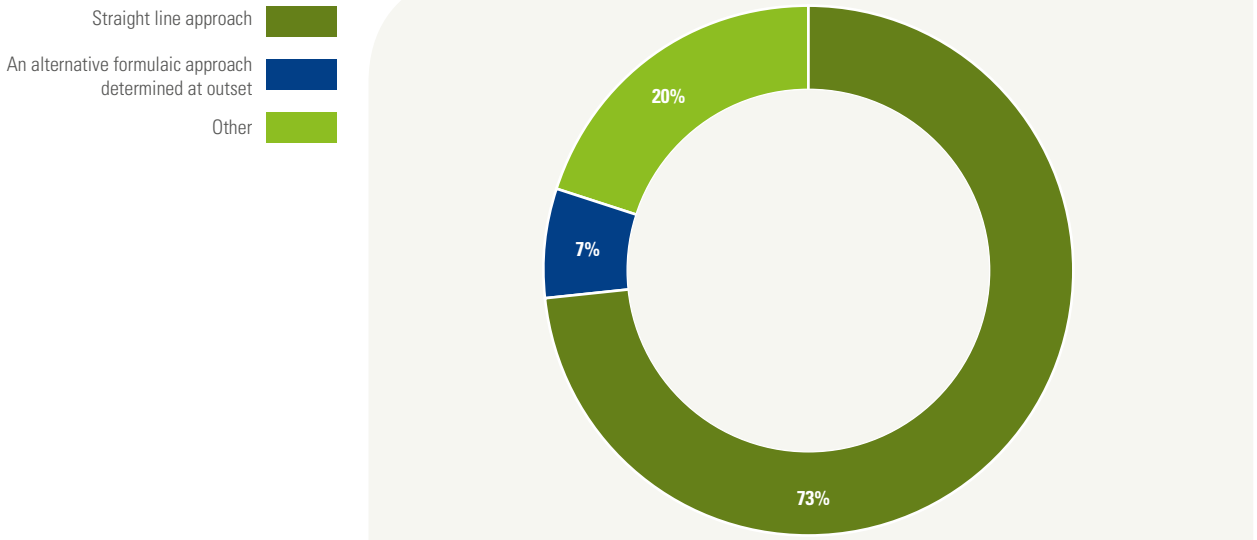
The graphs above show as a box and whisker plot the benefit to Own Funds from using transitional measures, shown in absolute terms and expressed as a percentage of the Own Funds. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile. It should be noted that these graphs include an outlier (whose benefit to Own Funds was given as £2.3bn) which explains the large gaps between the 75th percentile and the maximum value.

Graph 6.6.5:
For the technical provisions transitional, which basis is driving the comparison?



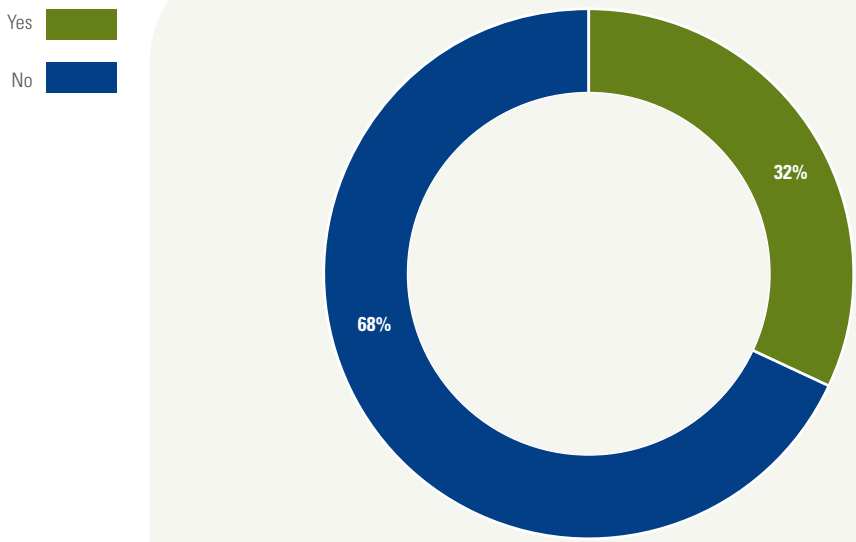
Graph 6.6.5 shows that the majority of respondents are comparing their Pillar 2 (ICA) balance sheet to that under Solvency II when deriving the estimate of the impact on Own Funds from using transitional measures.

Graph 6.6.6:
How do you intend to manage the change in your transitional provision values over time?



We asked firms how they intended to run off their transitional provision value over time. This was discussed in the PRA's March 2015 supervisory statement SS17/15. 73% of respondents (9 firms) indicated that they would make use of a simple straight line run-off approach. This matches the PRA's expectation in SS17/15 that in the absence of a recalculation, run off will be linear until the transitional deduction reaches zero.

Graph 6.6.7:
Do you intend to use Equity Risk Transition Stress for your Standard Formula calculation?



Two-thirds of respondents indicated that they would not make use of Equity Risk Transition Stress as part of their Standard Formula calculation.

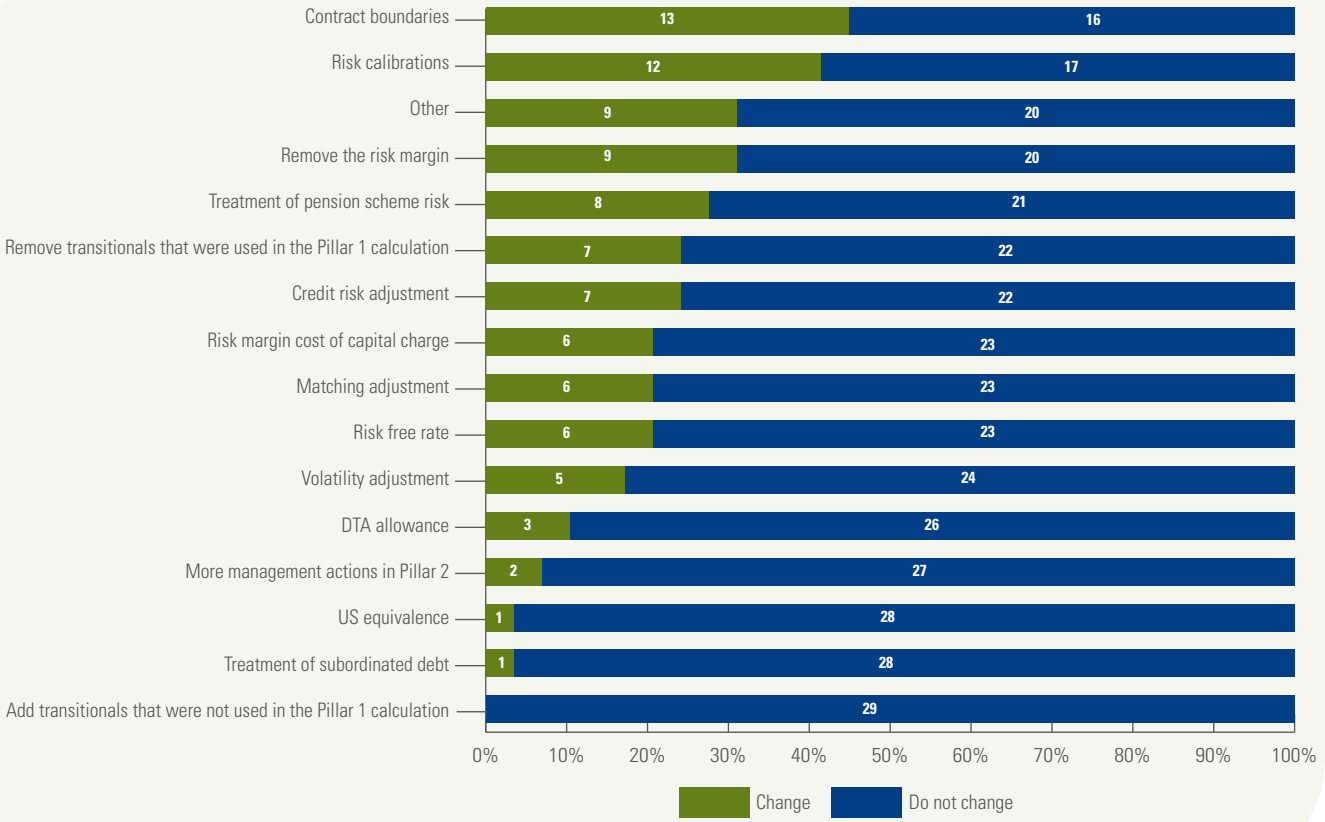
7 Own Capital Assessment

This section is based on each firm's YE14 Solvency II Pillar 2 own capital assessment. This means that we show what firms' own views are for each risk. Where firms could not provide this they have answered based on their YE14 ICA.

7.1 MOVING TO PILLAR 2

Under Pillar 2 the base balance sheet is not as constrained as under Pillar 1, hence firms have the option to make changes to reflect their own view.

Graph 7.1.1:
What do you change when moving from Pillar 1 to Pillar 2 in the base balance sheet?



Within "Other", we saw a range of aspects covered by respondents, which included:

- The range of risks included in the risk margin
- Choice of discount rate for determining the risk margin
- Techniques used to aggregate risk capital components
- Treatment of operational risk capital; and
- Nature of constraints imposed on capital tiering within Own Funds

The most common theme to appear within the "Other" responses was the treatment of Operational risk capital when moving from a Pillar 1 basis to Pillar 2.

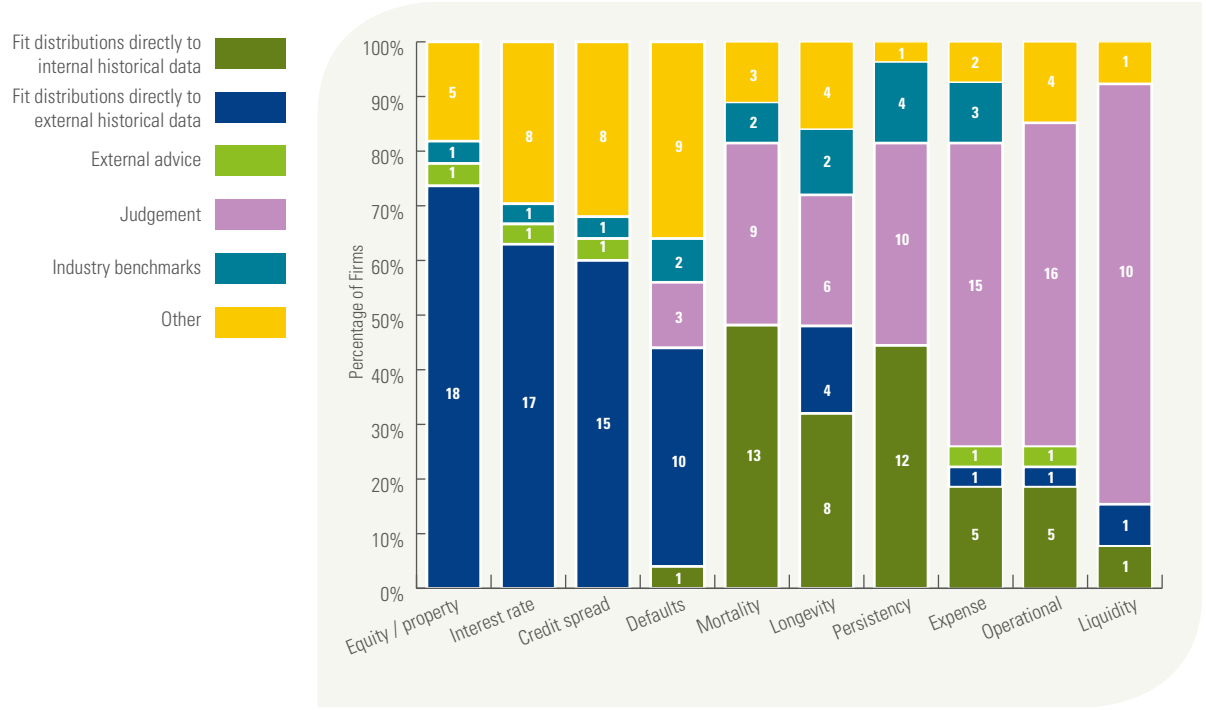
11 of the 12 respondents changing their risk calibrations were Standard Formula firms.

7.2 RISK CAPITAL

Under Solvency II each company has to calculate its solvency capital requirement (SCR). This section focuses on the approach used for each risk and the challenges involved.

Method used to determine 1-in-200 marginal stress

Graph 7.2.1:
Which method do you primarily use to determine your 1-in-200 marginal stresses for the following risks?



As expected, for market risks, firms predominantly fit distributions to the external historical data. This is in part due to the wide availability of good quality external data for market risks. There was a sizeable number of firms that selected "Other", especially in the context of calibrating their market stresses. Methods varied across respondents but generally firms used a combined method where expert judgement overlays are applied to a data-driven calibration. Since last year there has been a move away from the use of industry benchmarks.

Internal historical data is mainly used for insurance risks such as mortality, longevity and persistency, where the risk profiles of businesses will differ and internal data is available. As expected, external historical data is less widely used, as such data is less readily available (other than for mortality and longevity where population statistics are available).

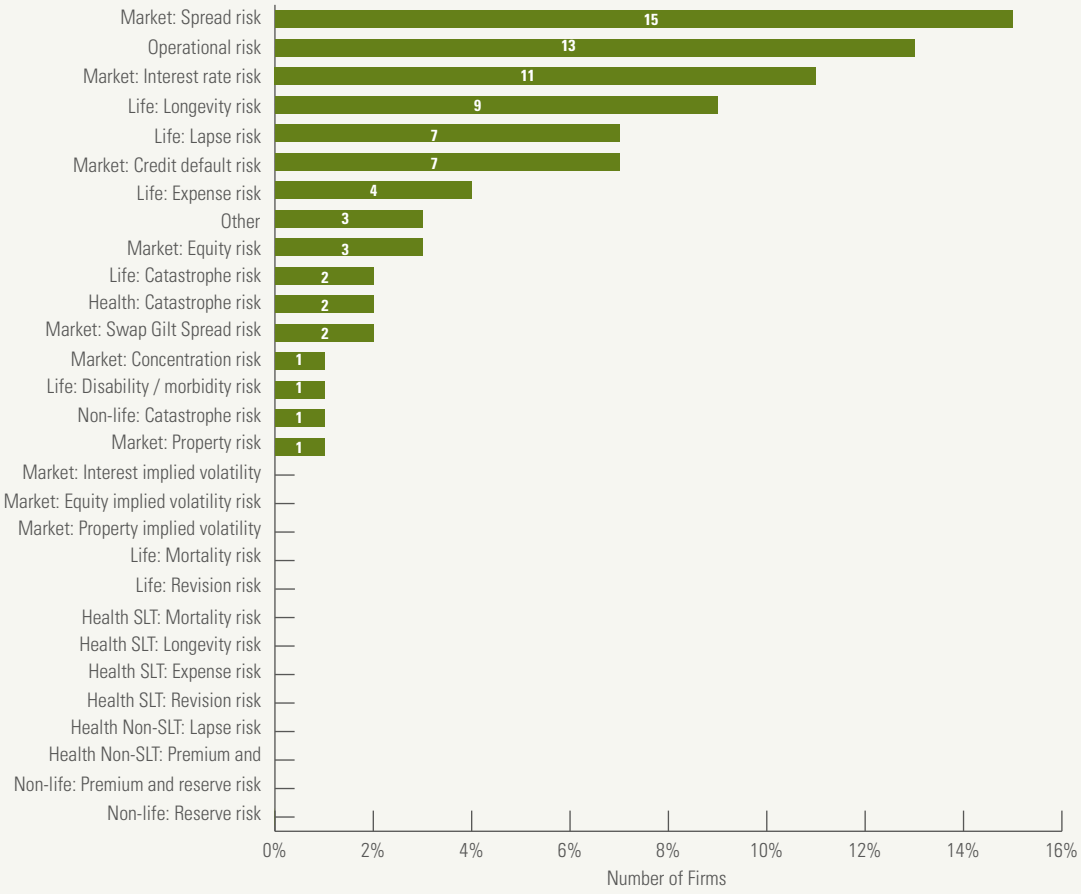
Firms described operational risk as the most challenging risk to model, and so it is expected that expert judgement would play a significant role in the setting of the 1-in-200 stresses. This is borne out in the responses.

For liquidity risk, the proportion of firms whose primary method is expert judgement has increased. Last year the proportion was 38% whereas this year, of the 13 firms who specified a primary method for liquidity risk, 10 firms (77%) specified expert judgment. This shift may reflect a combination of a genuine change in the underlying methodology along with a change in the underlying population of firms responding to this question.

Method used to determine 1-in-200 marginal stress

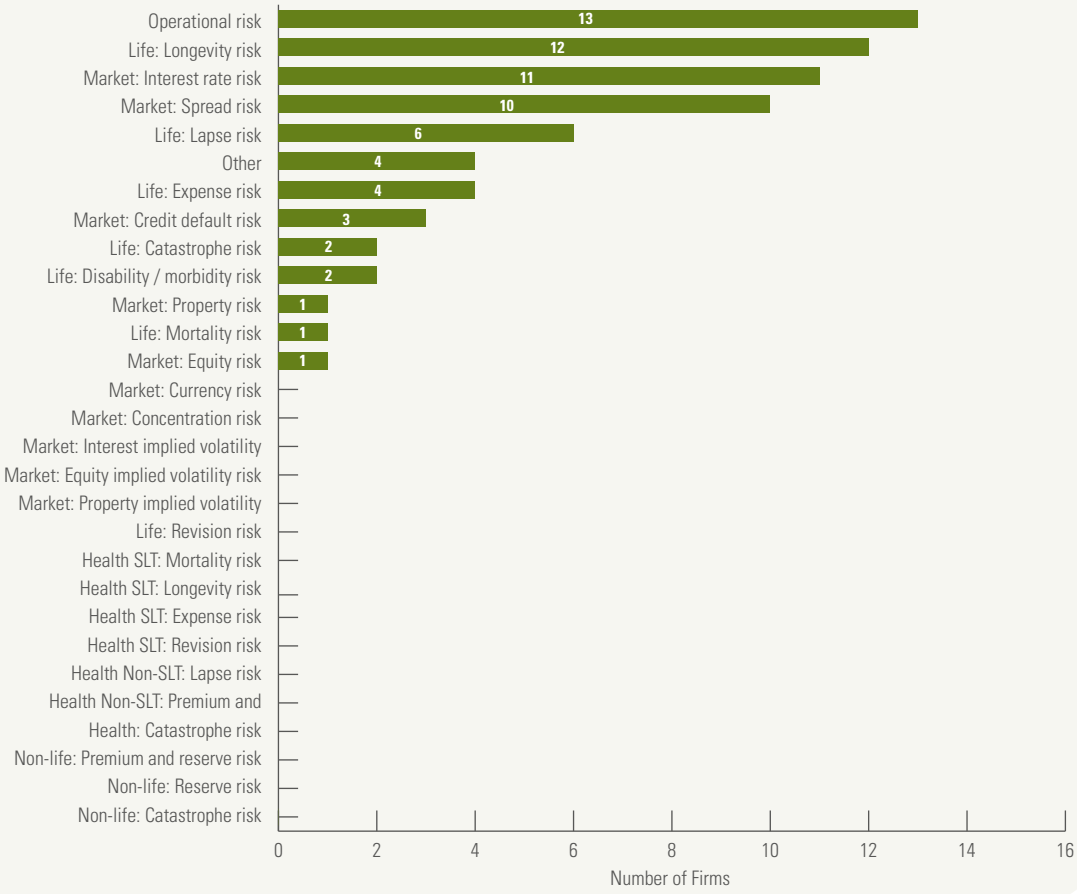
In all of our surveys since 2011, we asked participants which of the risks they found most challenging to model. This year we asked the participants to break this down into the most challenging to model and most challenging to calibrate.

Graph 7.2.2a:
Which of the following risks are your three most challenging to model?



Consistent with the observations in recent surveys, the risks that firms find most challenging to model are spread risk, operational risk, interest rate risk, longevity risk and lapse risk.

Graph 7.2.2b:
Which of the following risks are your three most challenging to calibrate?



Not surprisingly, respondents identified the same 5 risk categories as in the previous question on modelling, namely operational risk, longevity risk, interest rate risk, spread risk and lapse risk. Of the top 5 most challenging risk categories, 3 are also ones for which the PRA has developed in-house Quantitative Indicators, reflecting the PRA's view that these are challenging risks to model and calibrate.

Operational risk has been found to be challenging to calibrate by 13 firms. For this risk module we see a range of approaches used for calibration.

For interest rate risk, we have seen firms apply expert judgement to the raw stresses as stresses calibrated to historical data might not be severe enough to produce appropriate shocks. Expert judgement overlays will prove difficult to calibrate and we expect this to be a source of challenge for many firms.

Liquidity risk was not included in the list of options for this question however some respondents noted that liquidity was not considered in their risk capital calculation, but rather that this risk was managed separately.

7.3 MARKET RISK – INTEREST RATES

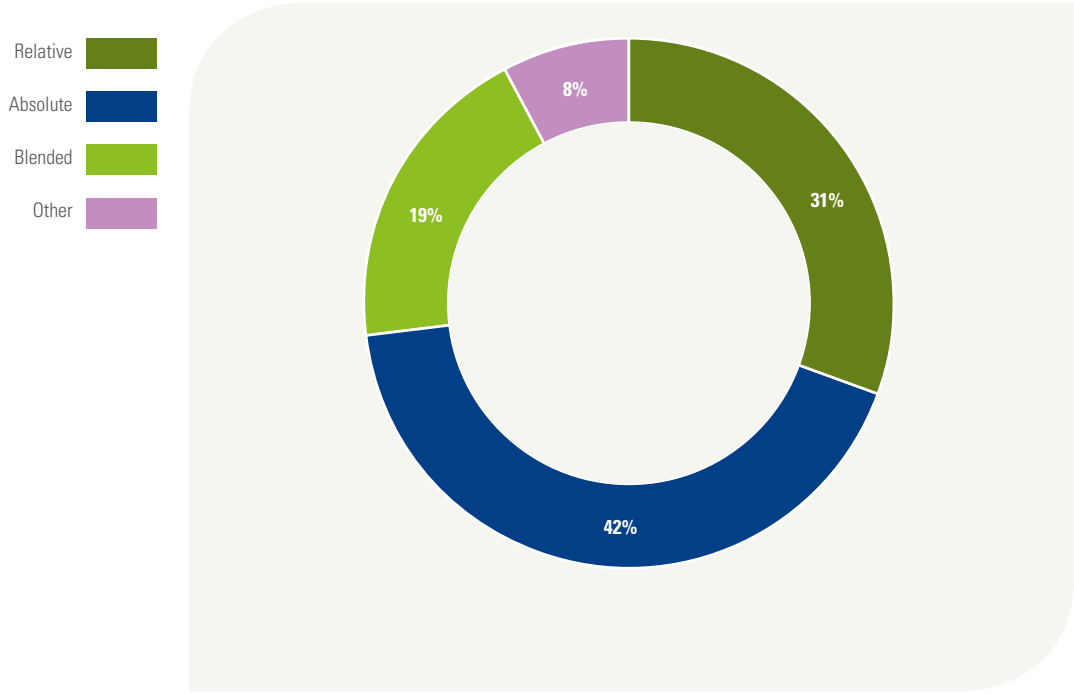
Firms described interest rate risk as amongst the most challenging to model and this is unsurprising given the prolonged low interest rate environment and the high volatility of interest rates observed during some historical periods. This section focuses on the methods used and the level of the 1-in-200 stress.

Principal components analysis (PCA) continues to be a popular approach to setting the interest rate stress and for those firms using PCA, almost all are using three components, while there has been an increase in the use of expert judgement overlays applied to the raw interest rate stresses.

Further detail, as well as the range of interest rate stresses in use at firms, can be seen in the remainder of this section.

Use of relative or absolute shock

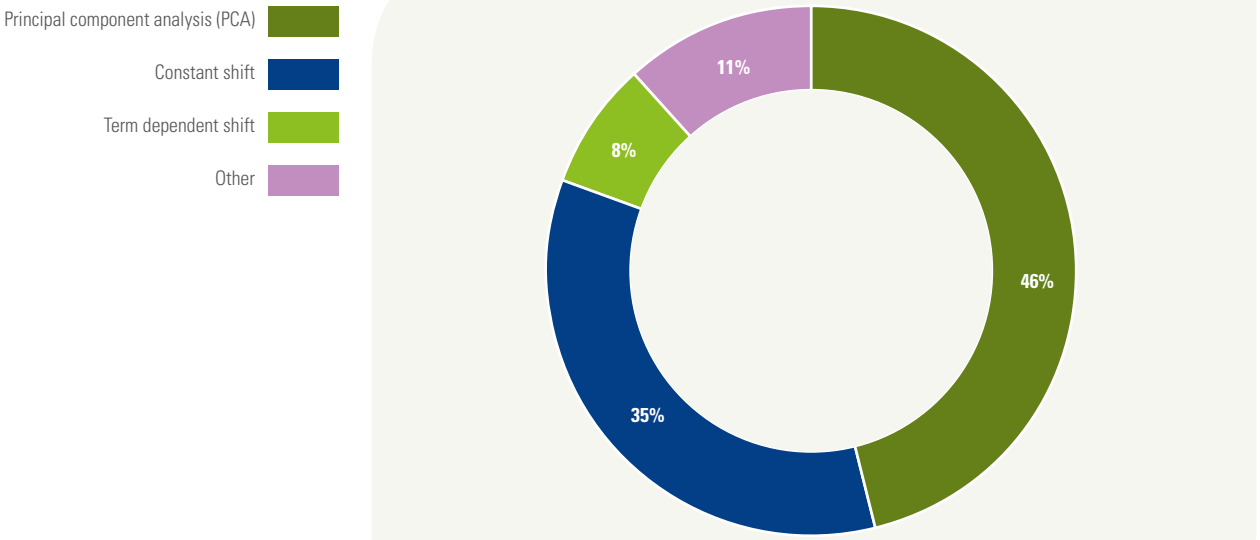
Graph 7.3.1:
Do you calibrate a relative or absolute shock for the purposes of your interest rate stress calibration?



We asked firms whether their interest rate stresses were proportional stresses or additive stresses. The proportion of firms who apply a relative interest rate shock has reduced from 45% to 31% (or 8 firms out of 26 responses) since last year's survey, with more respondents moving to a blended approach i.e. one that is absolute in a low yield environment and relative in a high yield environment. This reflects the need for interest rate stresses to have sensible behaviour across the business cycle. In the current low interest rate environment absolute stresses may be higher than relative stresses, prior to the application of any expert judgement overlays.

Interest rate stress methodology

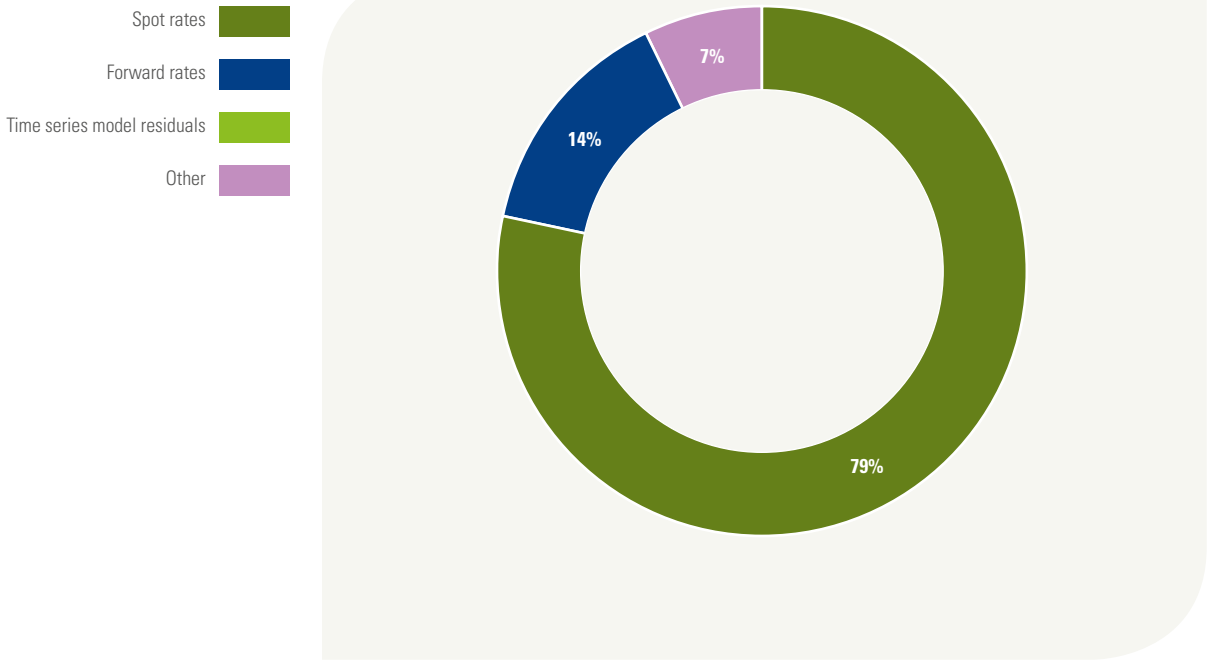
Graph 7.3.2:
When determining your interest rate stress, what methods do you use?



We asked firms what methods they used to determine their interest rate stress assumption and found that the distribution of responses was very similar to last year. Principal components analysis (PCA) continues to be popular with many respondents citing it as the method used to determine their interest rate stress. PCA is a specific type of term dependent shift aiming to be consistent with the shapes of movements observed historically in the data.

Principal component analysis

Graph 7.3.3:
If you use PCA to determine your interest rate stresses, to what data do you apply principal components analysis?

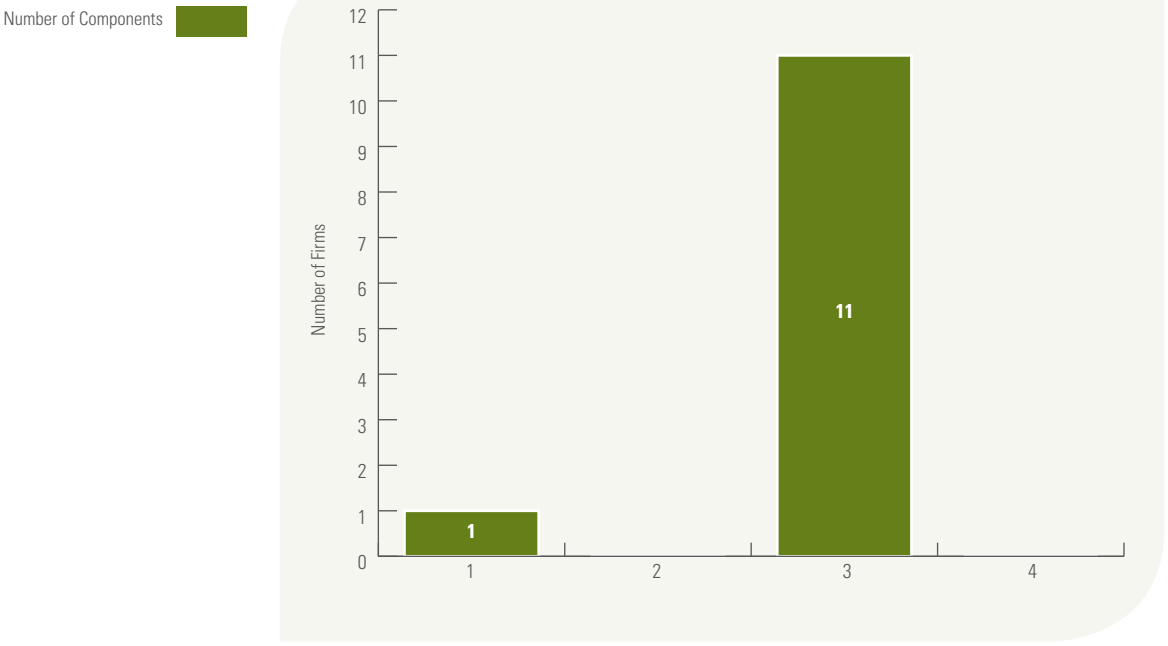


Where firms use Principal Components Analysis to derive their interest rate stresses, we asked to what data did they apply PCA.

The majority of firms who use PCA do so in relation to spot interest rates.

Number of principal components

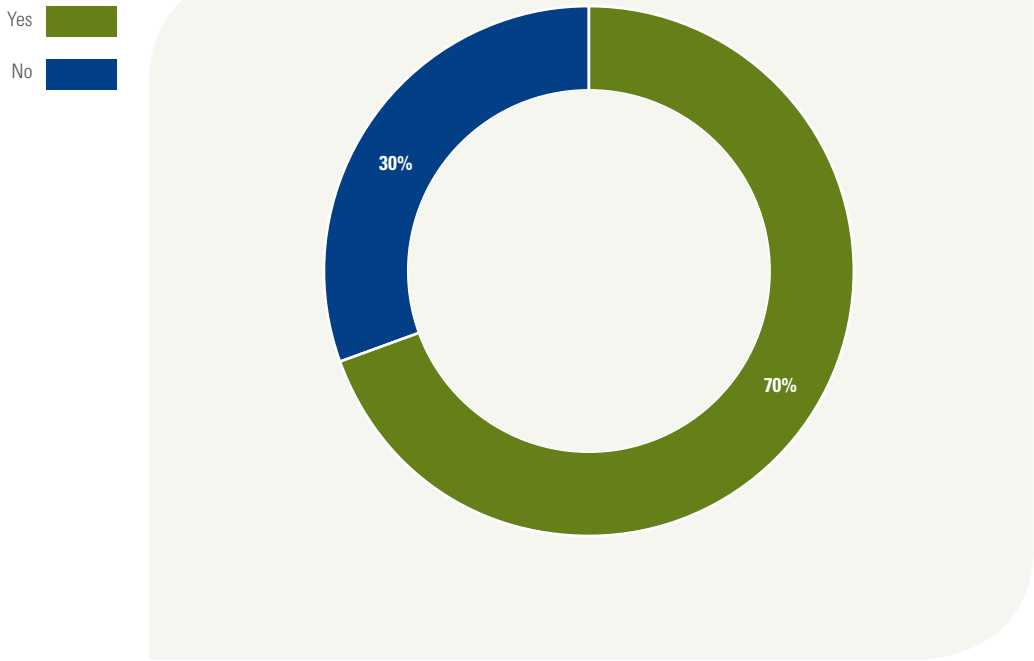
Graph 7.3.4:
If PCA, please specify how many principal components are analysed:



We asked firms how many principal components they use. This question was not asked last year. As expected, there is broad market consensus around the use of three principal components, which are often described as the level, slope and curvature of the yield curve. This is typically justified on the basis of three principal components explaining the majority of variation in the yield curve.

Expert Judgement Overlays

Graph 7.3.5:
Do you apply any expert judgement overlays that influence the level of the yield curve under stress?

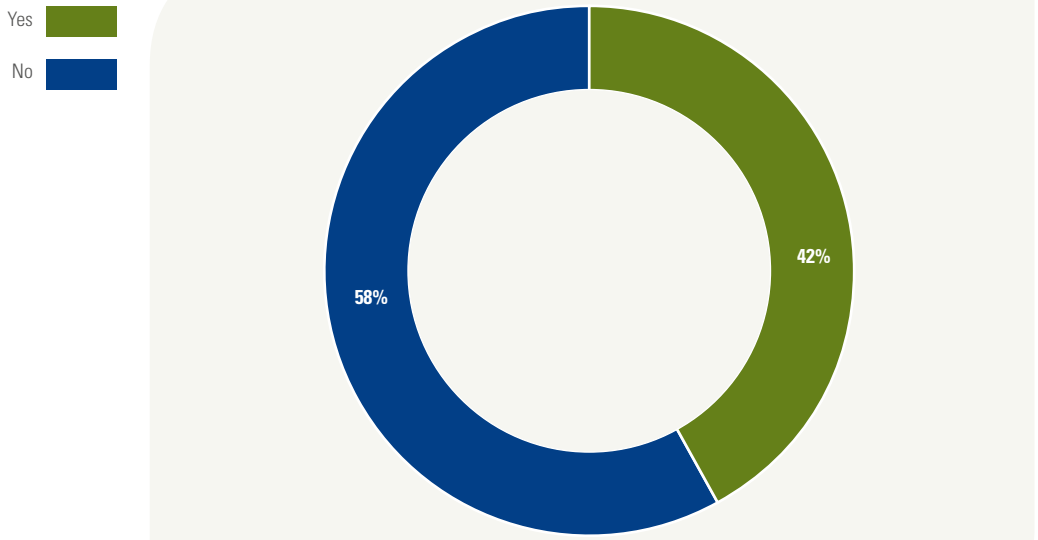


We asked firms to state whether or not they applied an expert judgement overlay to their yield curve stresses.

The majority of firms apply expert judgement overlays to their raw interest rate stresses, whereas last year there was a broadly even split amongst respondents.

Gilt swap spread stress

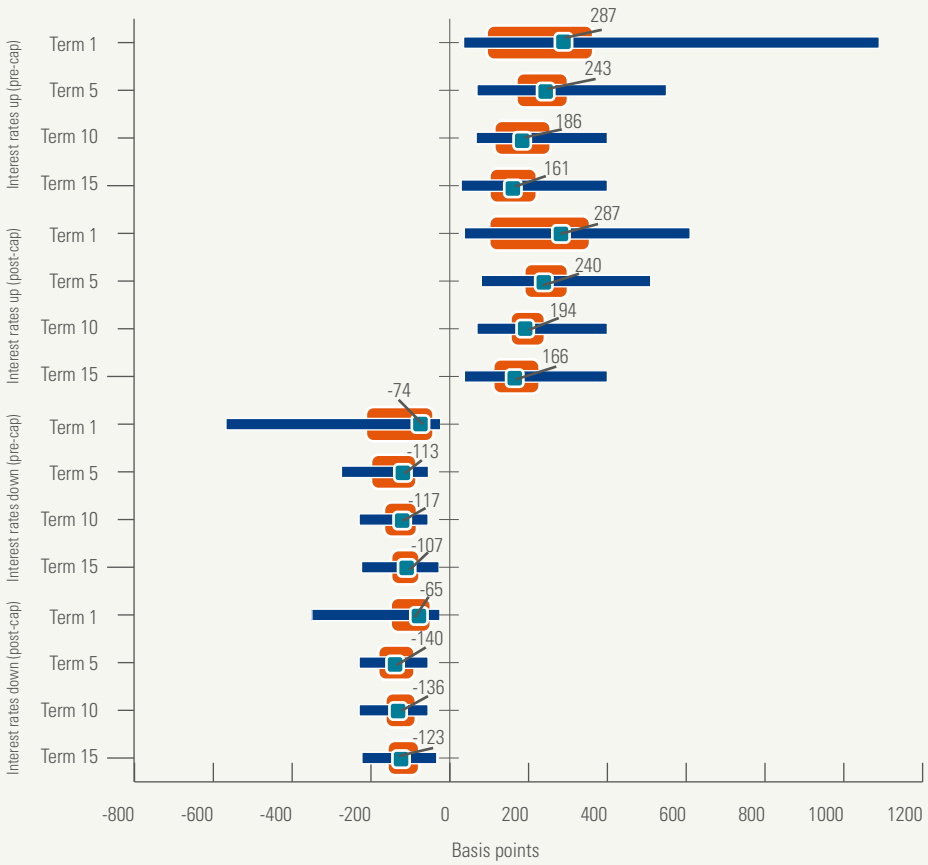
Graph 7.3.6:
Do you apply a stress to the gilt swap spread?



We asked firms whether they applied a stress to the spread between gilt yields and swap rates. This question was not asked last year. There was a broadly even split between firms. We note that at least one firm takes a different approach between the Pillar 1 and Pillar 2 balance sheets in the application of the gilt swap spread stress.

Level of the 1-in-200 yield curve stresses

Graph 7.3.7:
What is the level of your 1-in-200 yield curve stress at each duration (in basis points), expressed as the difference from the base curve?



Note that the graph shows as a box and whisker plot the distribution of yield stresses by term (shown as the difference between the stressed curve and the base curve, in basis points). The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

We asked firms to state their yield curve stresses at terms of 1, 5, 10 and 15 years.

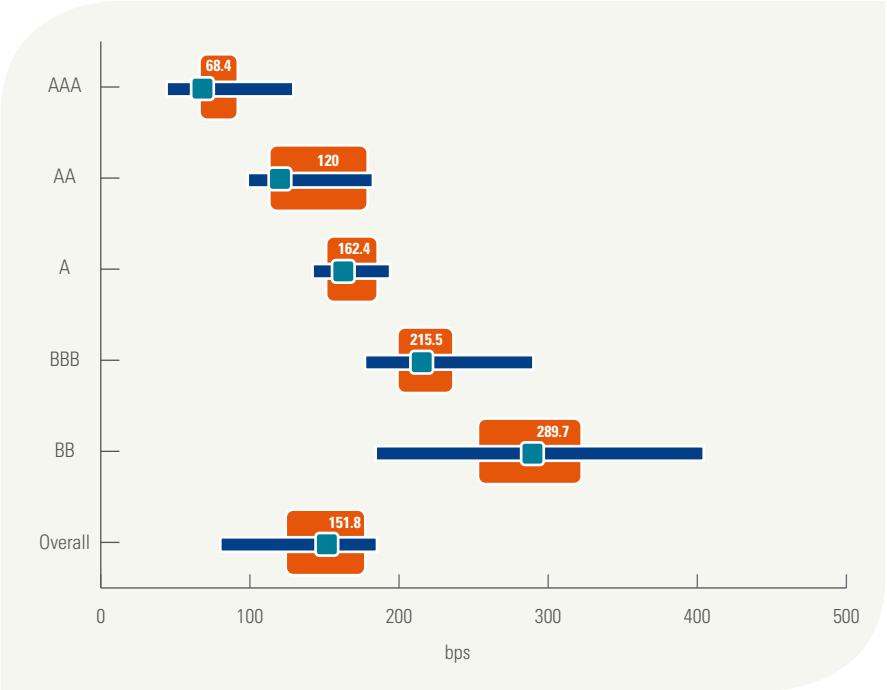
As expected, yield curve up stresses tend to reduce as a function of term reflecting the fact that long-term rates are historically more stable than shorter rates. Conversely, we find that downward stresses tend to be greater at the 5 year point when compared to the 1 year point reflecting the fact that there is less scope to reduce interest rates at the very short end of the yield curve. We also note that, overall, the magnitudes of the interest rate down stresses tend to be lower than the interest rate up stresses. Both of these observations reflect the current low interest rate environment as well as the application of floors resulting in smaller (downward) stresses in comparison.

Between 20% and 25% of firms exercised a cap (i.e. they specified pre and post-cap stress that were distinct). This was true across all terms and for both interest rate up and interest rate down stresses. The majority of firms who apply a floor allow interests rates to become negative under a downward stress.

7.4 MARKET RISK - SPREADS

In order to set the context for this section we first consider the spreads currently achieved in firm's asset portfolio.

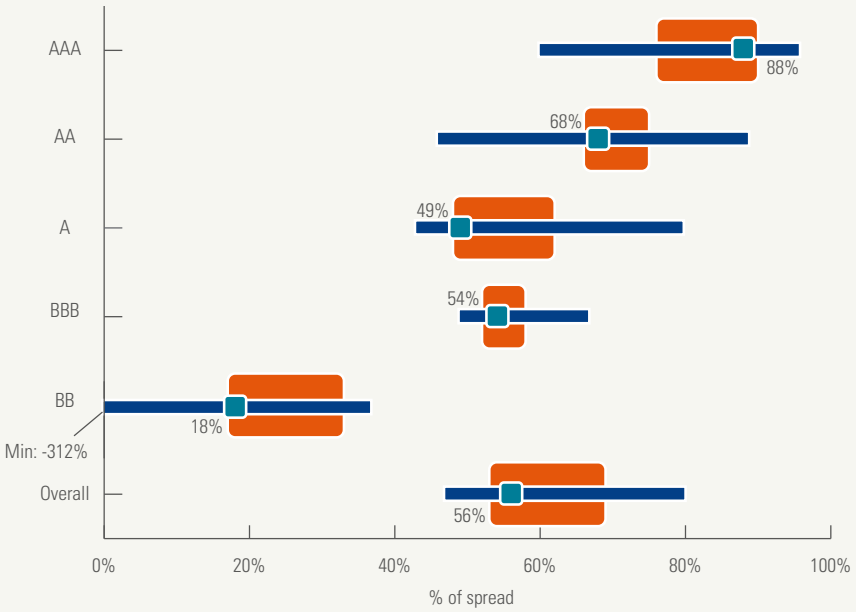
Graph 7.4.1:
What was the spread (in bps) between the swap yield prescribed by EIOPA and your corporate bond yields for the following bond ratings and durations?



Note that the graph shows as a box and whisker plot the distribution of the spread. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

Base matching adjustment

Graph 7.4.2:
In the base scenario, what percentage of the spread is assumed in the matching adjustment?



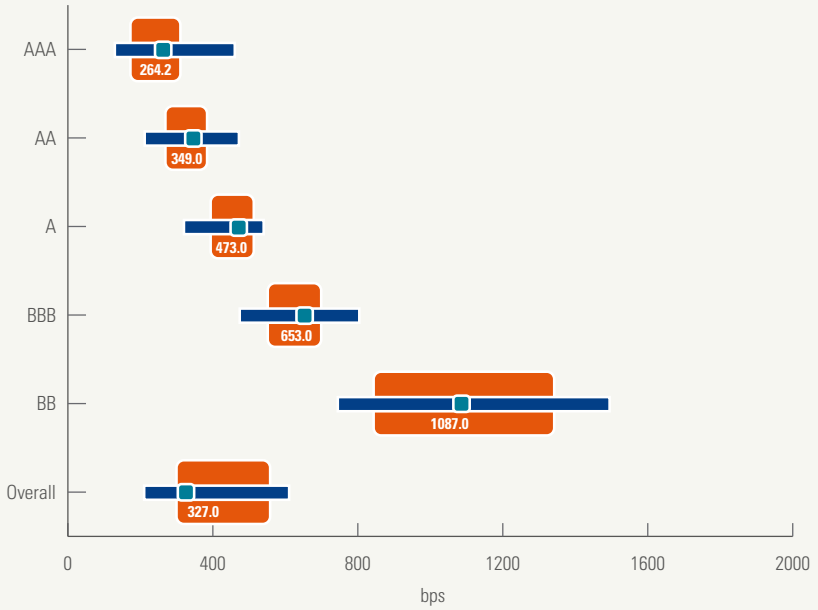
Note that the graph shows as a box and whisker plot the distribution of the percentage. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile. Note where the whisker is truncated the maximum/minimum value (as appropriate) is shown.

We note that one firm provided a negative percentage of spread for their BB assets. There was a known issue as at Year End 2014 whereby the fundamental spread (as specified by EIOPA) is greater than the total spread on the asset (for certain credit ratings and durations) which caused negative matching adjustments. This issue has since been resolved. If the negative result was removed from the data, the median for BB would be 25%.

We note that not everyone whose responses are shown in Graph 7.4.2 above answered both this question and the earlier question 6.2.4 in full, hence the slight differences between percentage shown for "Overall" when compared to the value shown in Graph 6.2.4a.

Total Spread under 1-in-200 stress

Graph 7.4.3:
In the 1-in-200 stress scenario, what is the total spread (over and above the swap yield prescribed by EIOPA) of your MA portfolio assets?



Note that the graph shows as a box and whisker plot the distribution of the spread. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile. Note where the whisker is truncated the maximum value is shown.

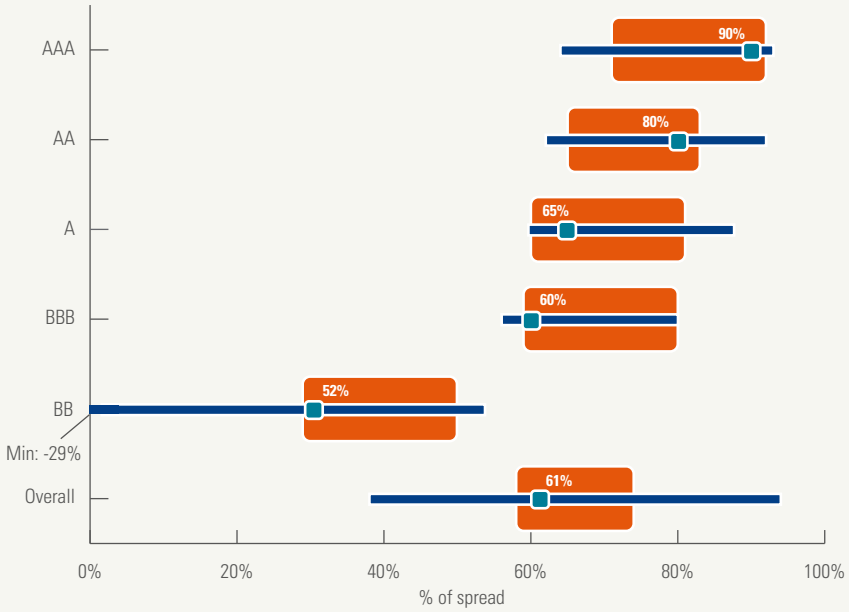
This graph shows the total spread (i.e. base spread plus the change in spread under a 1-in-200 stress).

The spreads are larger under the stress with the median overall spread increasing by 175bps (327.0 minus 151.8 from Graph 7.4.1). For each rating the median spread more than doubles under the stress.

Matching adjustment under stress

Under the 1-in-200 scenario a greater proportion of the spread can be assumed in the matching adjustment. This reduces the impact of the credit stress on the overall balance sheet.

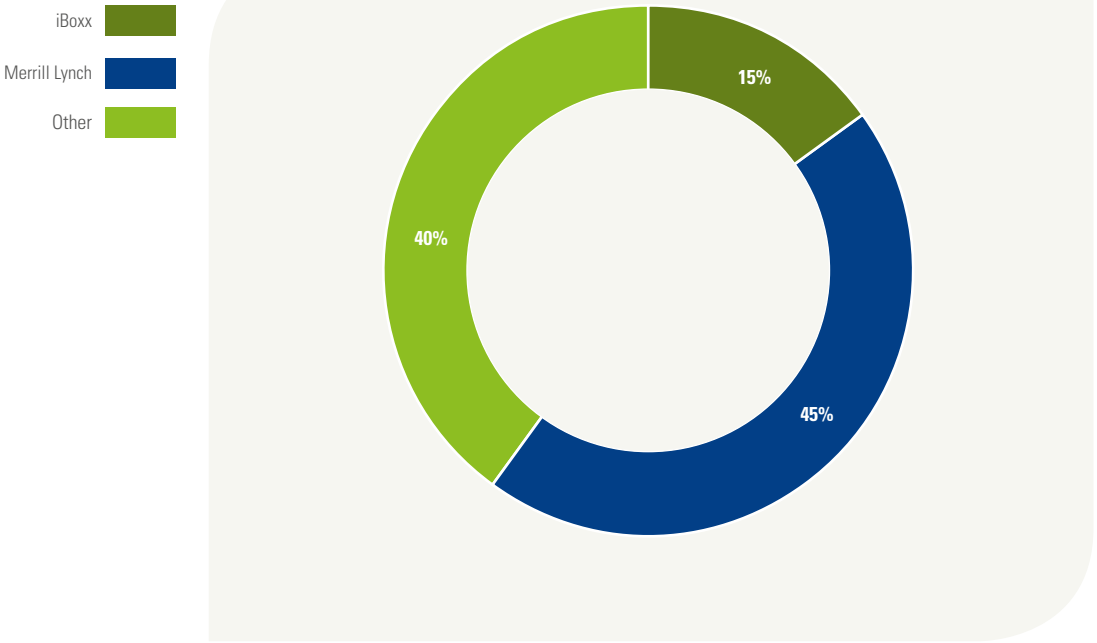
Graph 7.4.4:
In the 1-in-200 scenario, what percentage of the spread is assumed in the matching adjustment?



Note that the graph shows as a box and whisker plot the distribution of the percentage of spread assumed in the matching adjustment. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile. Note where the whisker is truncated the maximum value is shown.

Calibration of credit spread stress

Graph 7.4.5:
What data do you primarily use to calibrate your 1-in-200 credit spread stress?

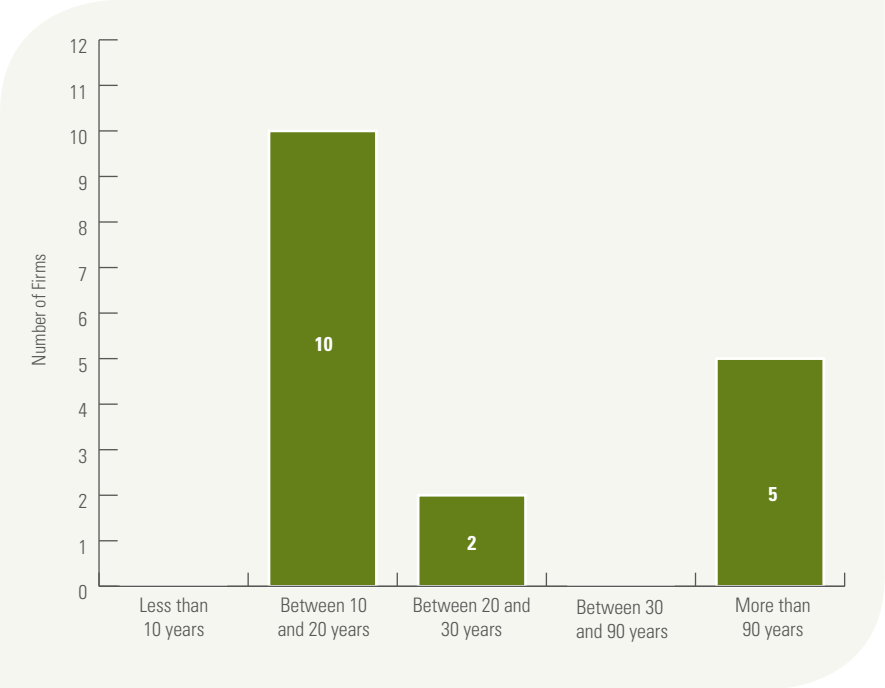


We asked firms which data provider they used to calibrate credit stresses and almost half of respondents use Merrill Lynch.

There were 8 responses included within "Other". Not all firms gave specific details about the source of data used, but those who did cited the following sources:

- Simulation output from the Barrie and Hibbert ESG
- Data from Barclay's POINT
- Data from Moody's
- Use of a standard formula stress to calibrate the credit spread stress

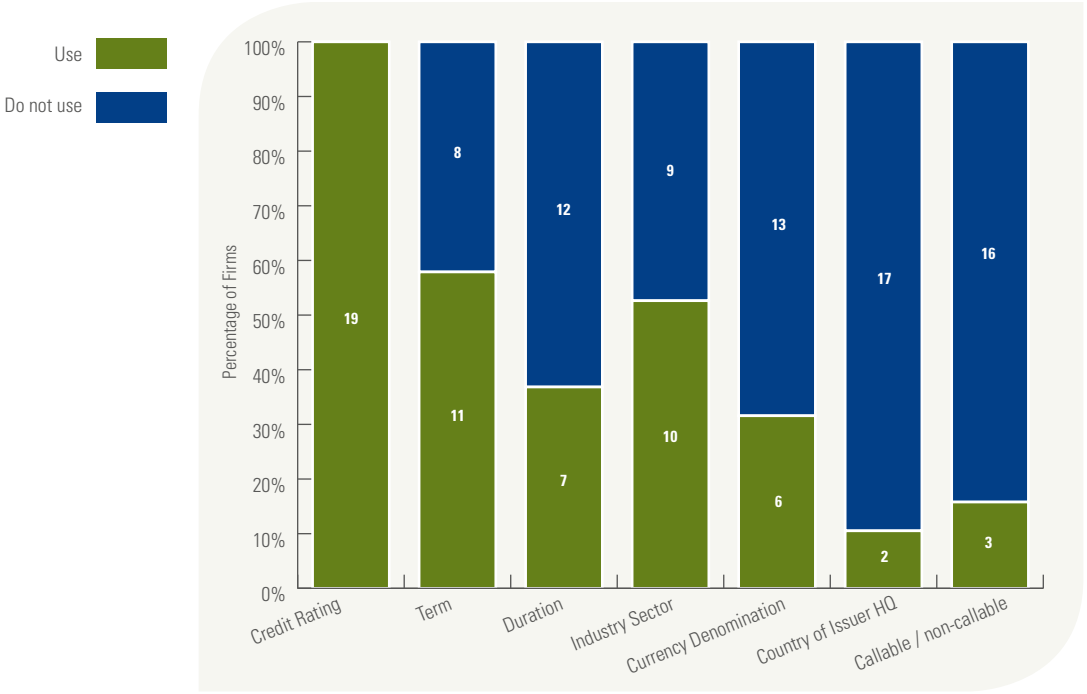
Graph 7.4.6:
What length historical period do you use to calibrate your 1-in-200 credit spread stress?



We asked firms what historical data window they use to calibrate their credit spread stresses. This was a new question that was not asked in last year's survey. The majority of firms look back over a period of between 10 and 20 years. However, as evidenced by the 5 respondents who look back over a period spanning more than 90 years, there is a divergence of opinion within the industry as to the appropriate length of observation period in determining the credit spread stress calibrations.

It should be noted that in the PRA's 9th March 2015 letter, the regulator stated that it used a data series covering approximately the last two decades in building the Quantitative Indicators for credit risk.

Graph 7.4.7:
What granularity do you use in setting your 1-in-200 credit spread stress?

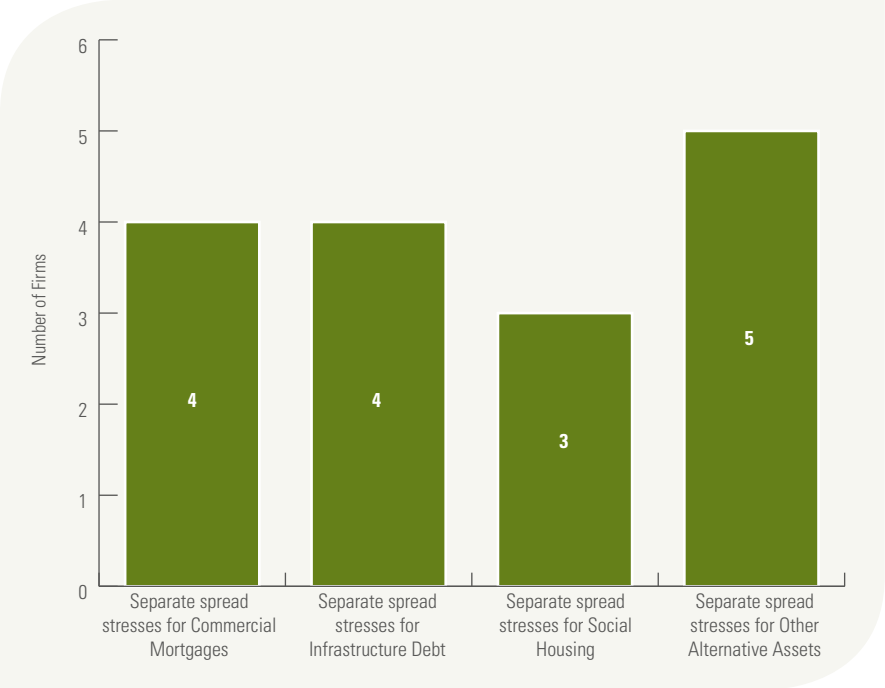


We asked firms to describe the level of granularity at which they set their credit spread stresses. All respondents use different stresses for each credit rating and the majority use different stresses by term and industry sector. This is in line with the manner in which the PRA determine their fundamental spread calibration.

We asked firms whether they apply a parallel shift in order to stress credit spreads, or whether there is some variation in the stress by time. For those firms that did vary their stresses by time, we asked how this variation was applied. Typically firms varied their stresses by term to maturity, however a smaller number of firms vary their stresses by the duration of portfolio cash flows. The variations in credit spread stresses by time were captured by the "Term" and "Duration" categories, respectively.

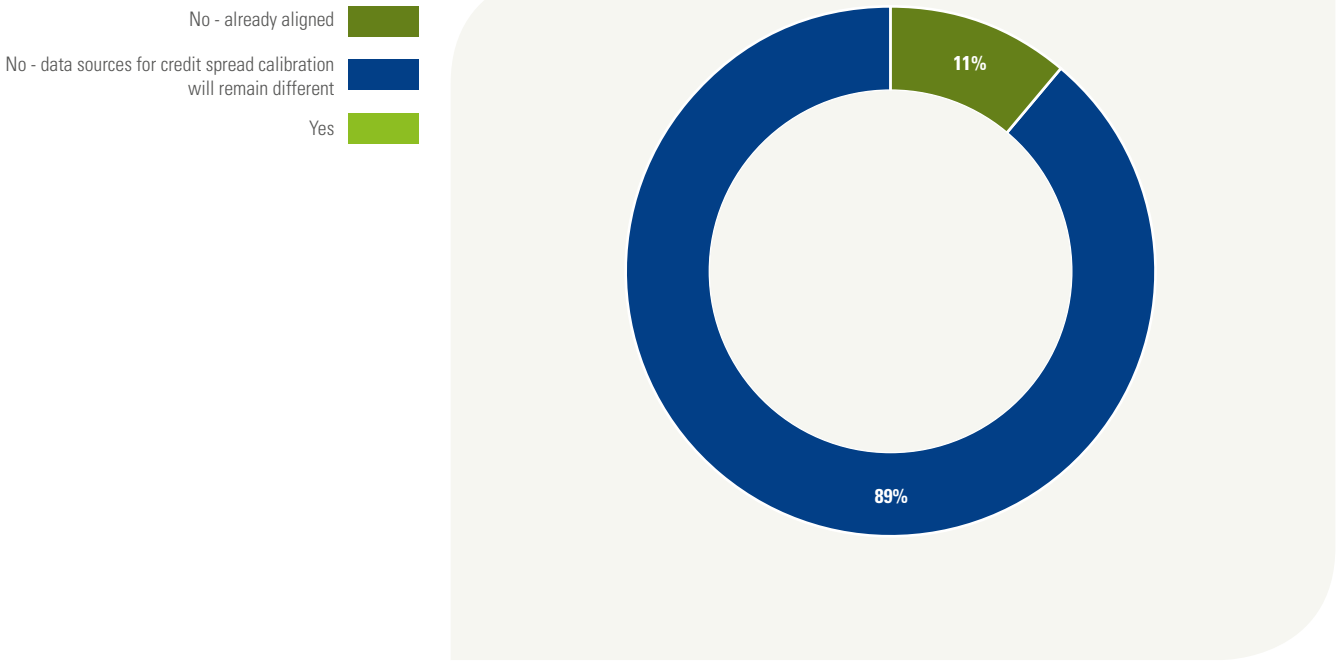
Similarly we asked firms whether their credit stresses varied by geography or whether they used the same stresses across all countries and currencies of issue. Some firms use stresses which do vary by geography and for the most part this variation is by currency of denomination. Few firms vary their credit stresses by the country of the issuer's headquarters.

Graph 7.4.8:
Do you have separate stresses for alternative asset classes or are they assessed within the credit model?



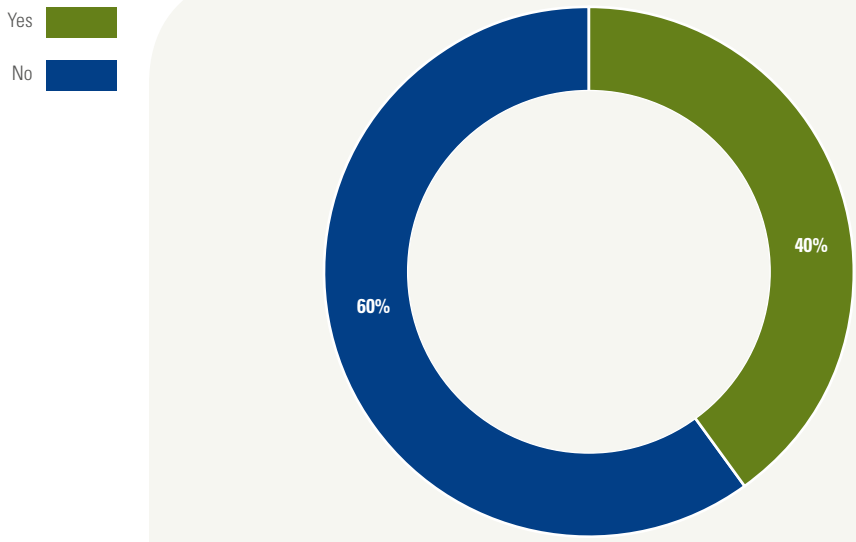
In the prolonged low yield environment, firms are typically increasing their exposure to alternative assets in the search for yield; hence we asked firms whether they had separate stresses for alternative credit assets.

Graph 7.4.9:
Do you intend to align your internal credit spread calibration to the data sources used by EIOPA in its calibration of the base fundamental spread?



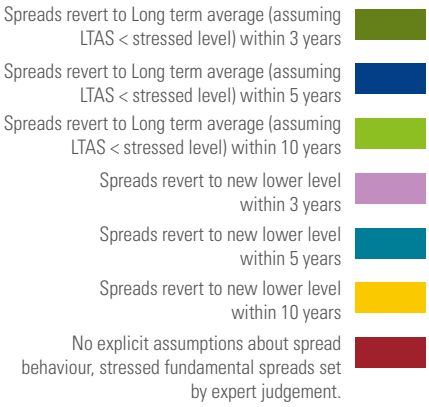
All respondents were either already aligned with the EIOPA data sources, or had taken the decision to calibrate their spreads using different data sources, with the majority of firms choosing the latter approach.

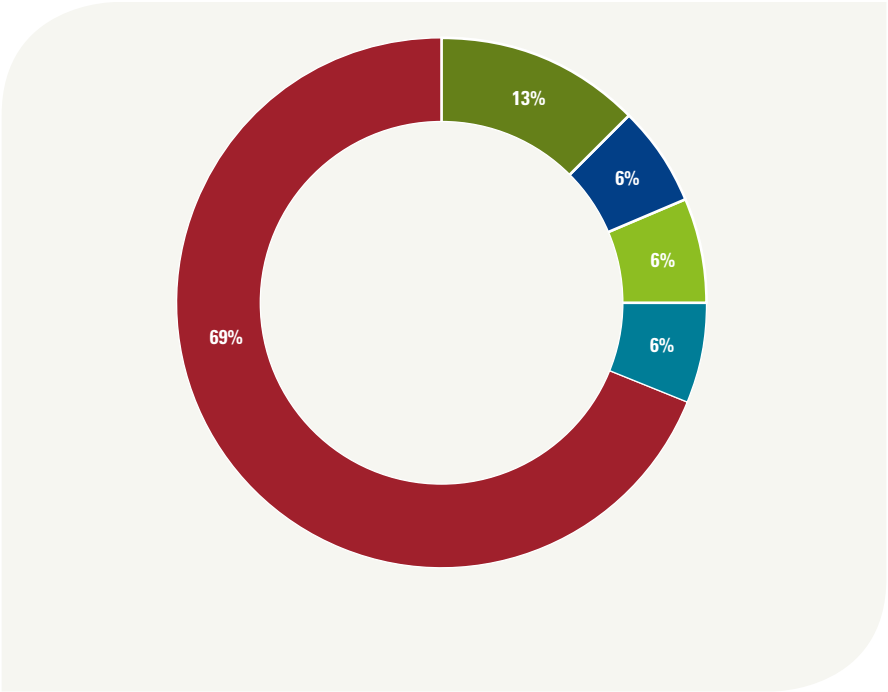
Graph 7.4.10:
Do you allow for negative credit spreads?



When modelling credit spreads, 40% of respondents (8 firms) indicated that they allowed credit spreads to become negative. We did not ask this question last year.

Graph 7.4.11:
How do you assume spreads behave when calibrating fundamental spreads under a credit stress?

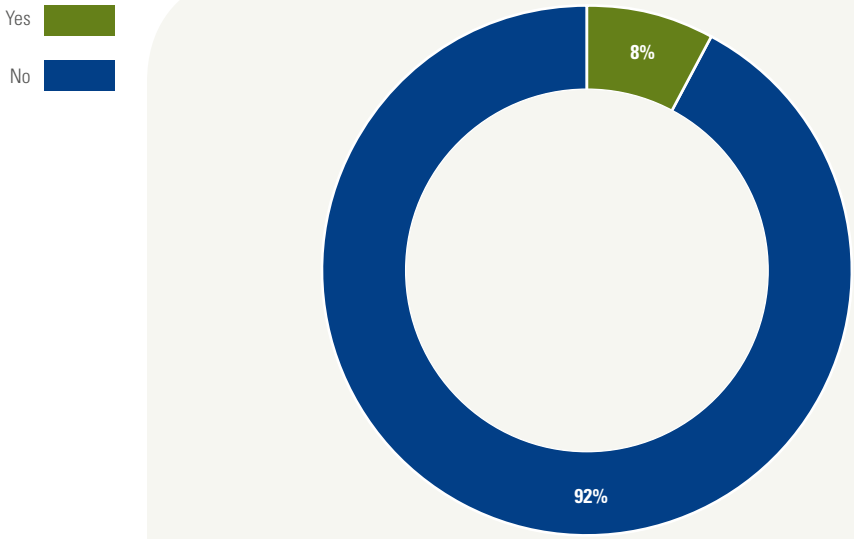




The majority of respondents have no explicit assumptions about how spreads behave following a credit stress event and their tendency to revert to a pre-determined value, choosing instead to use expert judgement to determine stressed fundamental spreads and their future behaviour.

Stressing the volatility adjustment

Graph 7.4.12:
Do you intend to stress the volatility adjustment?



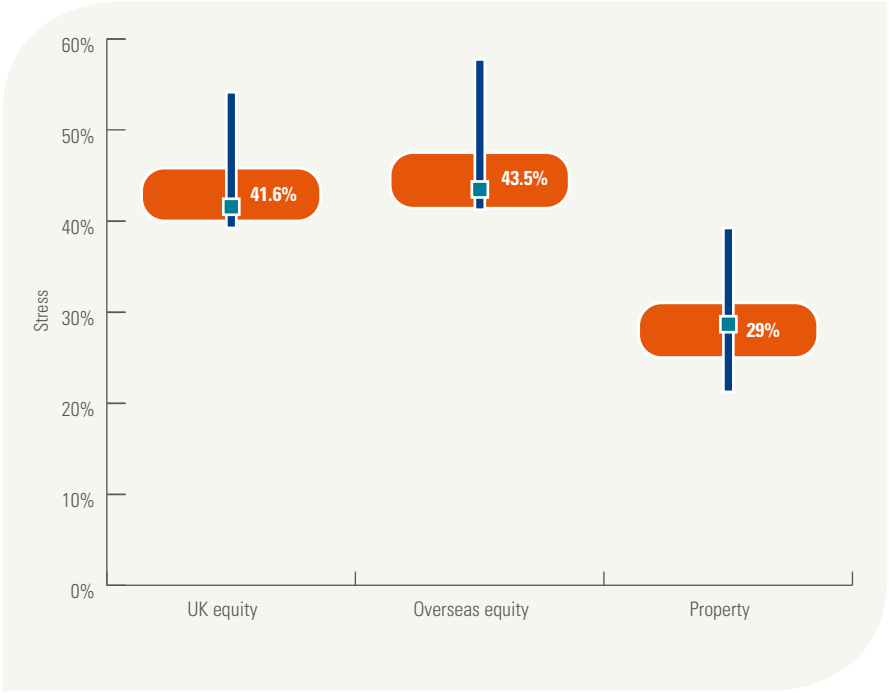
The volatility adjustment is part of the long term guarantees package and where applicable impacts on the valuation of the liabilities. There is a clear trend among respondents that they will not be applying a stress to the volatility adjustment, which is in line with the PRA view. We also asked firms about the size of the stress they would be applying to the volatility adjustment, but due to the limited number of affirmative responses we are unable to quantify the stress while maintaining the anonymity of respondents.

7.5 MARKET RISK – EQUITY & PROPERTY

Equity and Property markets are large and well defined, with investments in these markets usually significant in size for most firms. Recent history in these markets has seen some instability, so we considered how firms approach their assessment of risks in these markets.

Size of shock to equity and property market values

Graph 7.5.1:
For the most material asset type and/or geography, what is the size of shock to equity and property market values under your 1-in-200 stress?



Note that the graph shows as a box and whisker plot the distribution of the size of the relevant asset class stress. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

The median stresses are broadly similar to last year across UK equity, Overseas equity and property.

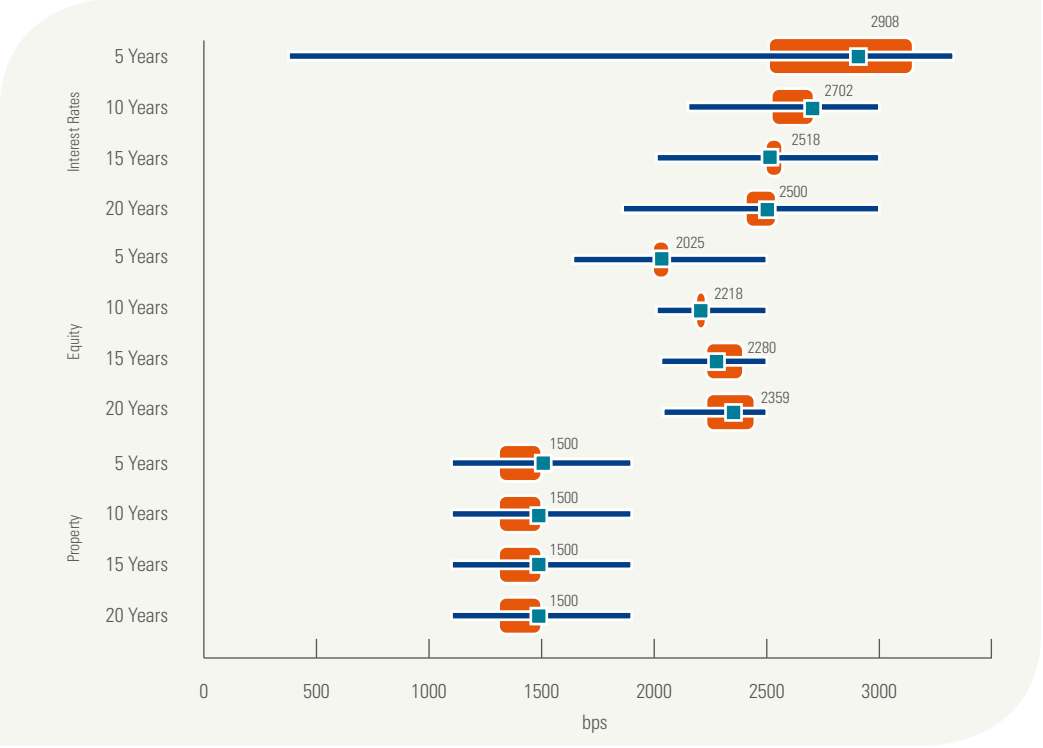
The minimum stress for Overseas equity has risen from 25% last year to 40% this year. This change is largely explained by a significant movement in the stress applied by one firm.

7.6 MARKET RISK – VOLATILITY

Volatility in markets can vary depending on many factors, and recent history has seen market volatility come increasingly into focus. Assessing volatility is an important area for firms in understanding their exposure to market risks.

Base volatility assumptions

Graph 7.6.1:
What assumptions do you use for base volatility levels (in basis points) at various terms?



Note that the graph shows as a box and whisker plot the distribution of the volatility. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

The volatility assumptions relate to implied volatility on various assets and liabilities. For example, implied interest rate volatility on interest rate swaptions, implied volatility on equity call and put options and implied volatility on equity release mortgages. Equity and interest rate volatility parameters are modelled by using a term structure whereas property volatility is typically modelled as a constant.

There has been a substantial increase in interest rate volatility assumptions over the last year. For example the median 5 year interest rate volatility assumption has increased from 1700bps to 2908bps. This may reflect short-term uncertainty within interest rate markets, which may be linked to the uncertainty surrounding the timing of any Bank of England base rate increase.

The equity volatility assumptions have broadly remained the same as last year.

The range of property volatilities is lower than the range of equity volatilities, but this is a trend which we saw in last year's results also. No firms have a term structure for property volatility, whereas most firms do have a term structure for equity volatility.

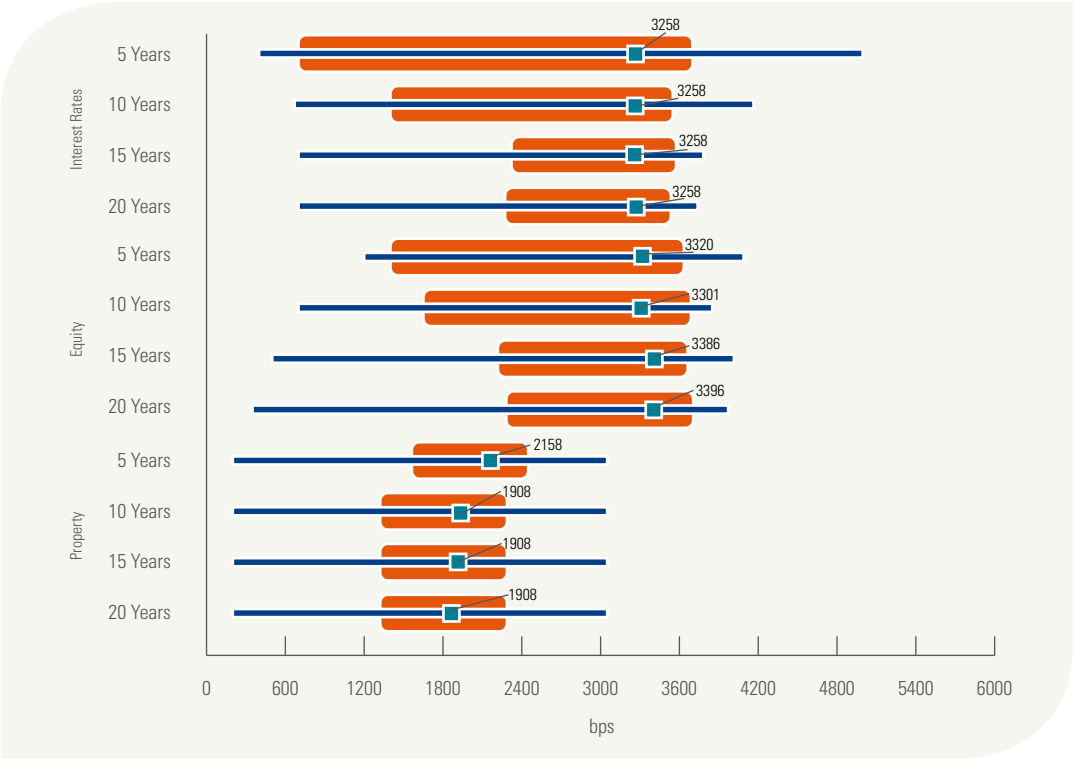
A noticeable difference from the responses given last year is in the spread of responses provided for equity volatilities, which has reduced significantly this year, especially at the 5 year tenor where the inter-quartile range has reduced from 343 basis points to 75 basis points over the year.

There has also been a noticeable reduction in the spread of responses for interest rate volatilities at terms longer than 5 years, and in addition the size of interest rate volatilities has increased, with median values increasing by around 70%.

For property volatility there were nine respondents and three firms assume 13.1% and four firms assume 15.0%. The inter-quartile ranges for property have increased from zero at all durations last year, but overall the treatment of property volatility by firms has not altered significantly.

Stressed volatility

Graph 7.6.2:
What level of 1-in-200 stress do you apply to base volatility levels (in basis points) at various terms?



Note that the graph shows as a box and whisker plot the distribution of the volatility. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

We received a wide range of responses on this question. The lowest 5 year property volatility stress was 200bps and the highest was 3050bps. This was also the case last year and may reflect differences in risk profile between respondent firms.

This year, the inter-quartile range of responses was wider than last year. For example, for 5 year interest rate volatilities the inter-quartile range has increased from 242bps in the 2014 survey to 3000bps. Similar changes have been observed for all interest rate and equity volatility stresses. There were 8 firms who submitted a 5 year interest rate volatility stress in both the 2014 and 2015 surveys. Last year these 8 responses ranged from 400bps to 900bps. Over the last twelve months, 4 of these 8 firms have increased their 5 year interest rate volatility stress by more than 2500bps. Combined with 3 firms, whose stress remained unchanged, this explains the substantial increase in inter-quartile range.

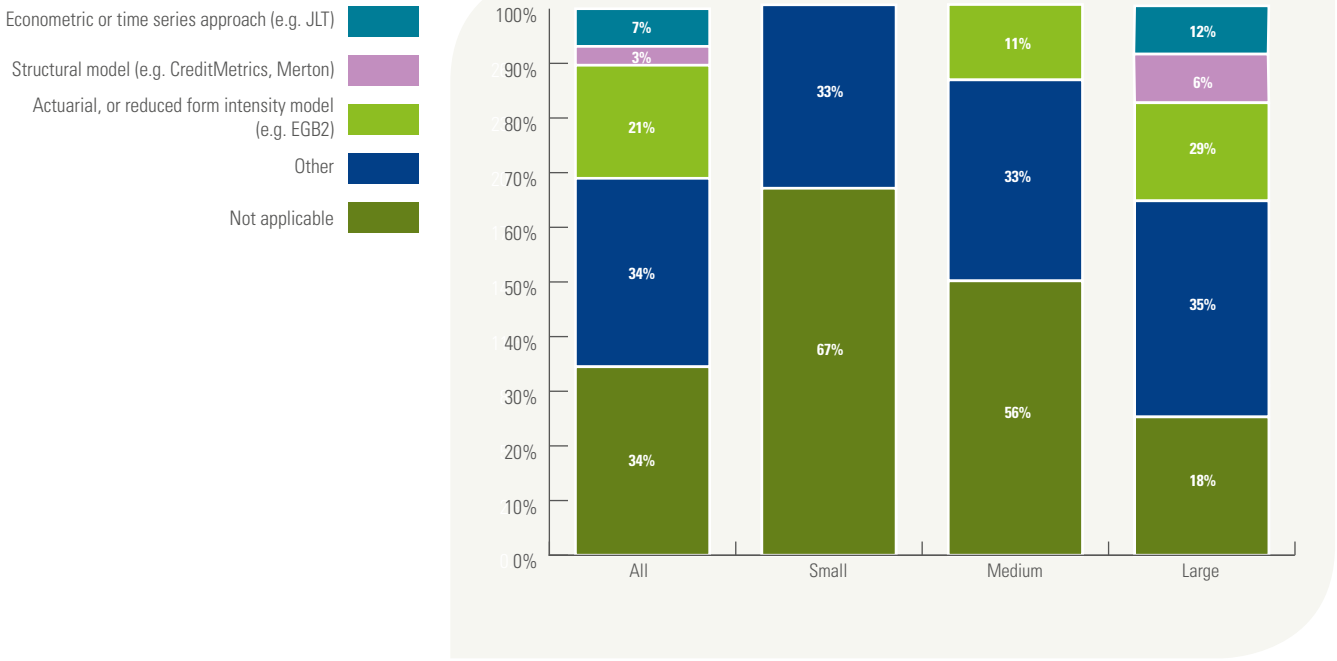
Additionally, the median stresses are significantly higher. For interest rate volatilities and equity volatilities the median stresses have increased from around 750bps and 1250bps respectively in the 2014 survey to around 3300bps this year.

7.7 CREDIT DEFAULT RISK

This section covers credit default risk and the challenges that firms face in modelling it. Although there is a large amount of market data available, and credit events are usually tightly defined, there are a number of challenging aspects in assessing a firm's exposure to credit default.

Approach to modelling credit default risk

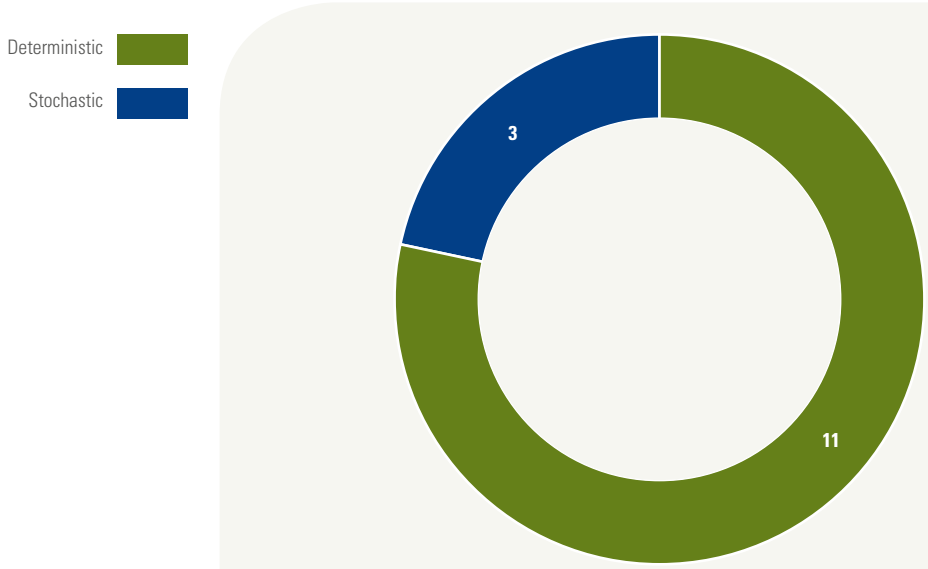
Graph 7.7.1:
What technique best describes your approach to modelling credit default risk?



A significant proportion of firms do not model credit default risk, reflecting either a limited exposure relative to other risks or perhaps a prohibitive cost of doing so. As might be expected, this is more common for smaller firms than for larger ones.

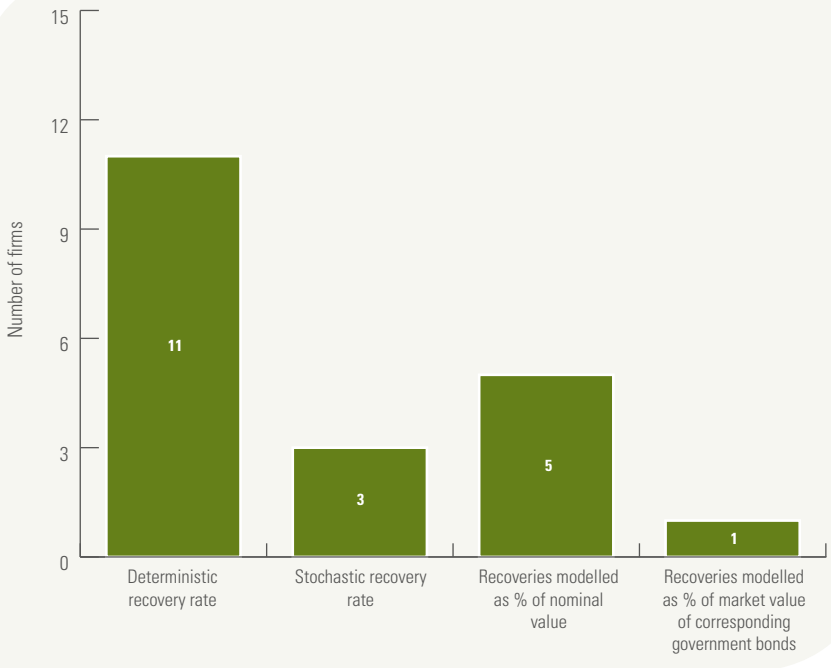
Only the largest firms adopt a fully modelled approach to assessing credit default risk using one of the methods described, however among the large proportion of "Other" responses some consistent themes included the combination of one of the approaches with either historic default data or some other modelling approach, or both; as well as incorporating credit default risk into their assessment of credit spread risk.

Graph 7.7.2a:
What technique best describes your approach to modelling recoveries on credit defaults?



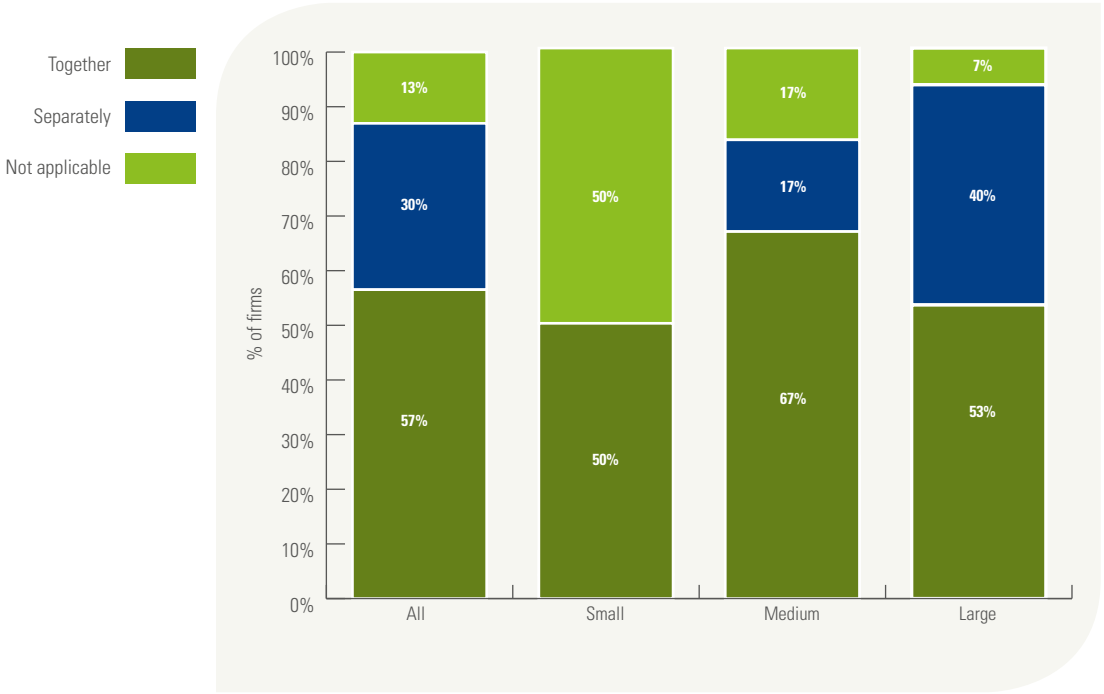
We asked firms to describe their approach to modelling credit recoveries. The majority of firms are assuming a deterministic recovery rate.

Graph 7.7.2b:
What technique best describes your approach to modelling recoveries on credit defaults?



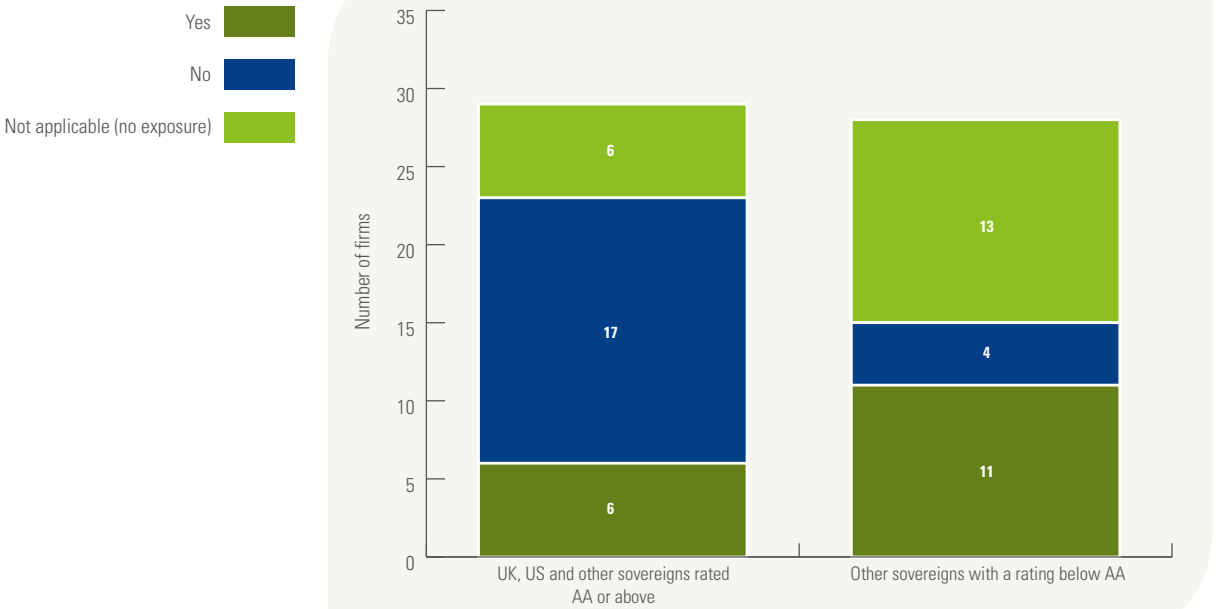
We asked firms how they define their recovery rate, however many firms did not specify their method.

Graph 7.7.3a:
For traded securities (e.g. corporate bonds, ABS), do you model credit spread risk and default risk together or separately?



We asked firms about their combined approach to modelling credit spread and credit default risk. Most firms responded that they model these two risks together. The overall shape of responses to this question was similar to last year.

Graph 7.7.3b:
Do you hold any capital for sovereign default risk?



We asked firms about their approach to sovereign default risk. For AA rated sovereigns including the UK and the US, 6 firms hold capital. For other sovereigns, which would include for example Greece, 11 firms hold capital.

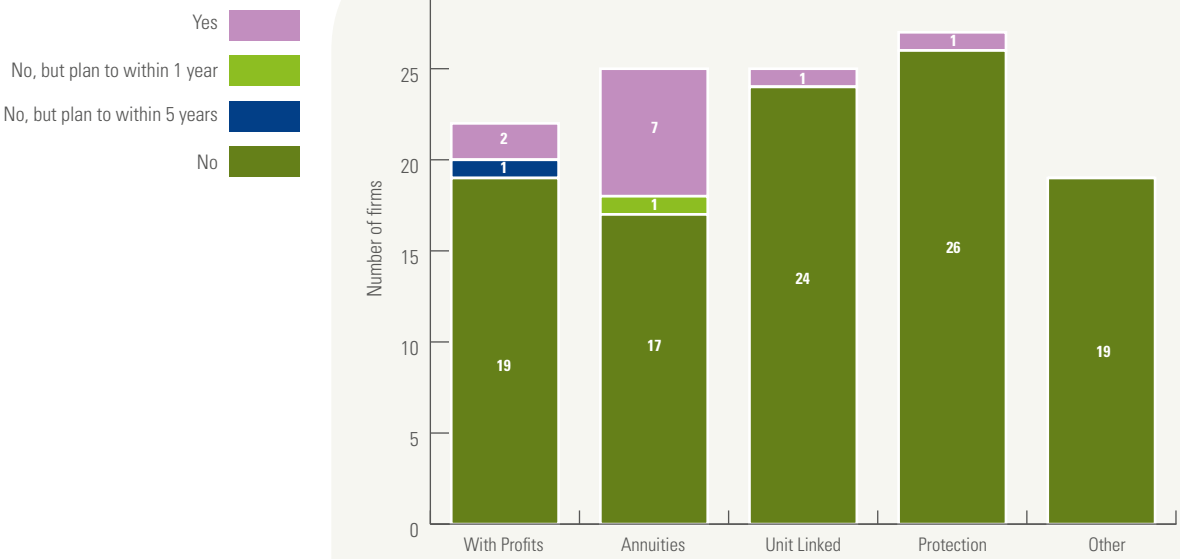
7.8 INSURANCE RISK - MORTALITY

In this section we consider insurance risk capital for mortality and longevity risks.

Compared to market risks firms generally rely on more expert judgement, in part due to the relatively limited amount of data available and the resulting challenges in calibrating stresses.

Stochastic modelling

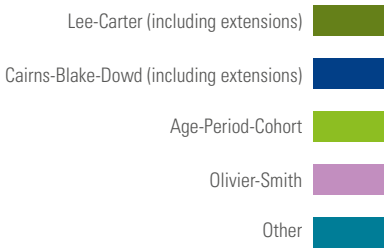
Graph 7.8.1:
Do you use a stochastic time series model of future mortality for the following products?

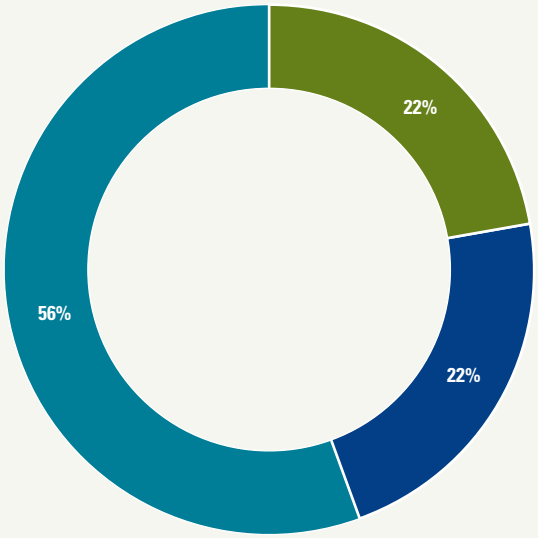


We asked our respondents whether they used a stochastic time series model of future mortality to set the mortality assumptions across various types of products. There were 29 firms who answered this question and 19 of these firms are planning to use the Standard Formula to calculate the SCR, while the rest are planning on using either a full or a partial internal model. Only one of the 19 standard formula firms uses a stochastic model to model mortality risk for at least one of their product types. Of the 10 firms using either a full or partial internal model, seven use stochastic models to model mortality risk for at least one of their product types.

Stochastic time series model of future mortality

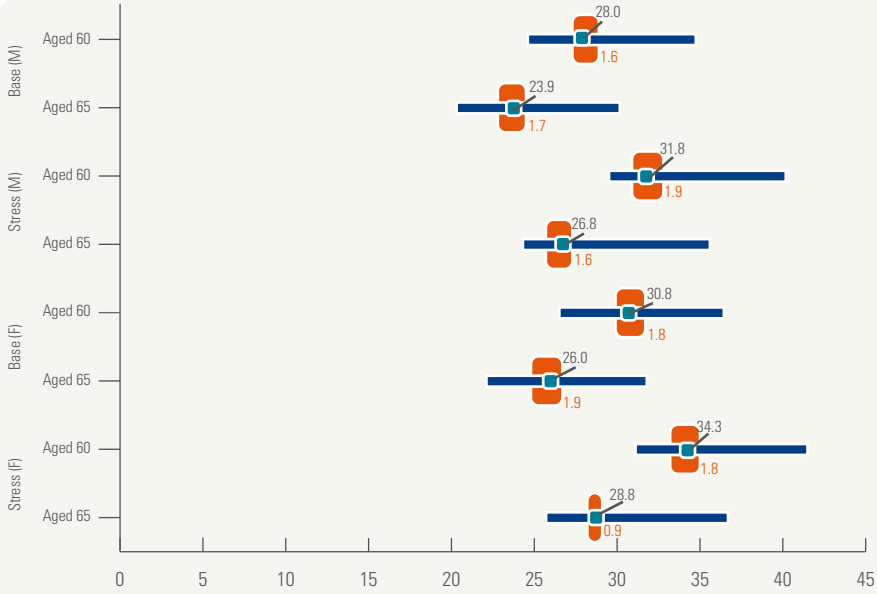
Graph 7.8.2:
If you use a stochastic time series model of future mortality, which of the following models do you use?





The 'Other' responses include a p-spline model, a mixture of models, a cause of death model and in-house models.

Graph 7.8.3a:
Expectation of life at ages 60 and 65 calculated using base and stress annuitant mortality assumptions

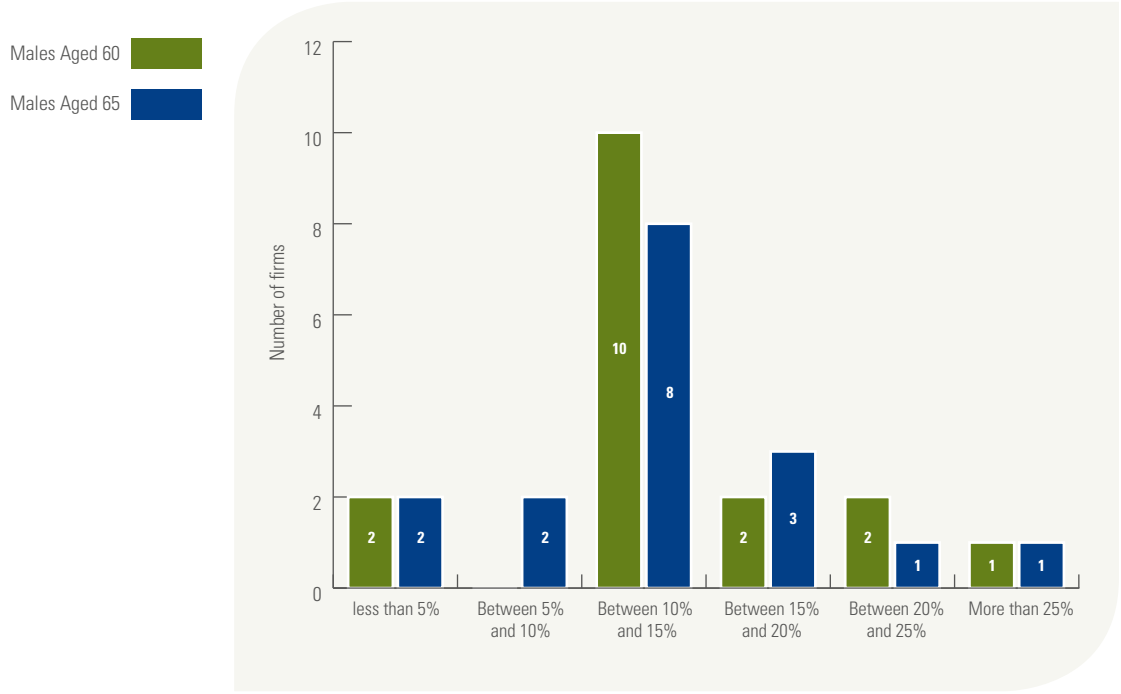


Note that the graph shows as a box and whisker plot the distribution of the volatility. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile. The figures shown in orange text indicate the width of the inter-quartile range.

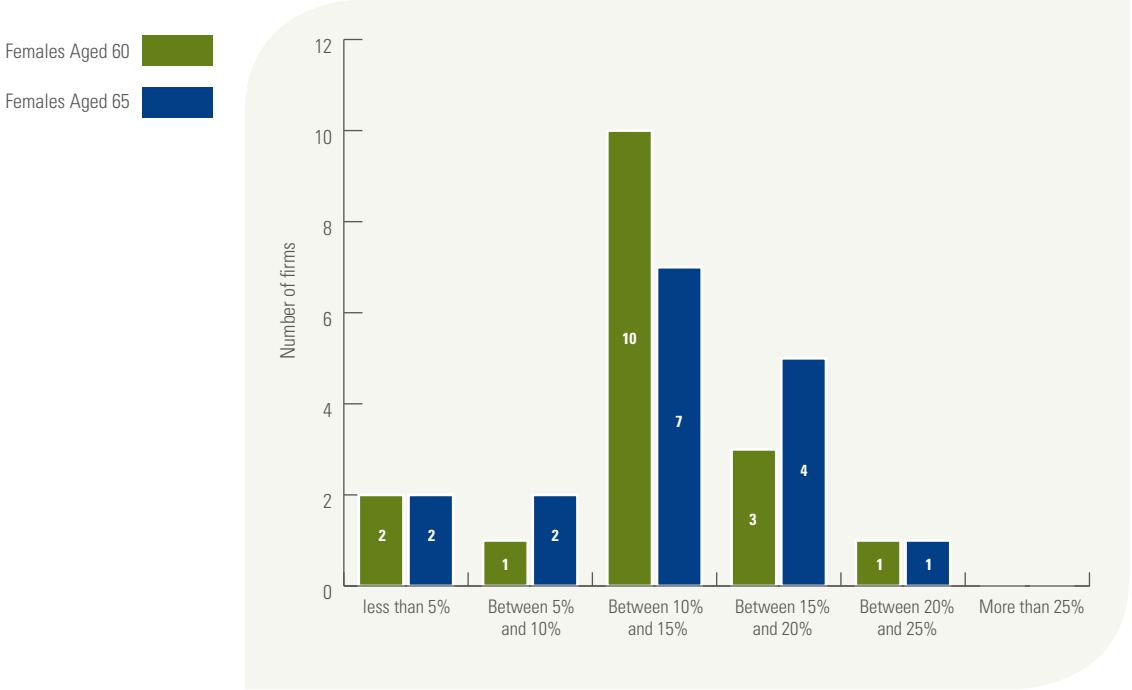
Using base annuitant mortality assumptions, respondents showed a median expectation of life (EOL) of 28 years for males aged 60 and 24 years at aged 65. The corresponding figures for females were 31 and 26 years, respectively.

As expected the average expectation of life for females is higher than for males. The difference in the medians for 60 year olds was 2.8 years and the difference in the medians for 65 year olds was 2.1 years.

Graph 7.8.3b:
Uplift in expectation of life (for males) at ages 60 and 65



Graph 7.8.3c:
Uplift under stress in expectation of life (for females) at ages 60 and 65



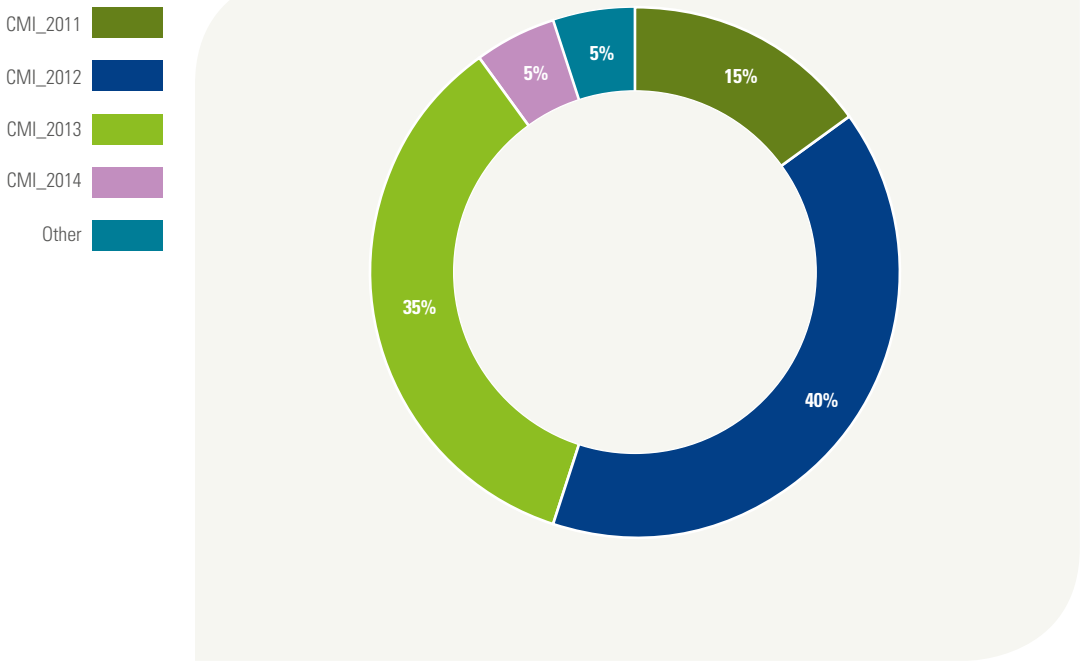
Across both males and females, at least 50% of respondents reported an uplift in Expectation of Life between 10% and 15% for both age cohorts.

The table below shows the average uplift in Expectation of Life under stress for both males and females, at ages 60 and 65:

Age	60	65
Male	3.93	3.68
Female	3.68	3.17

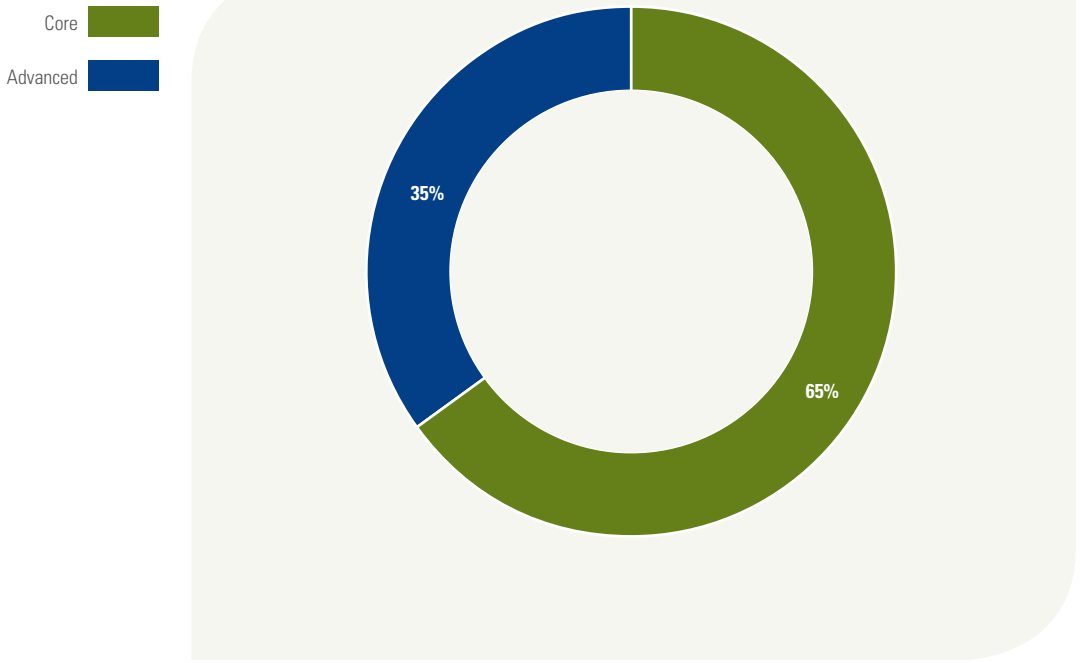
Modelling mortality improvements

Graph 7.8.3d:
Mortality improvement model used to model annuitant mortality

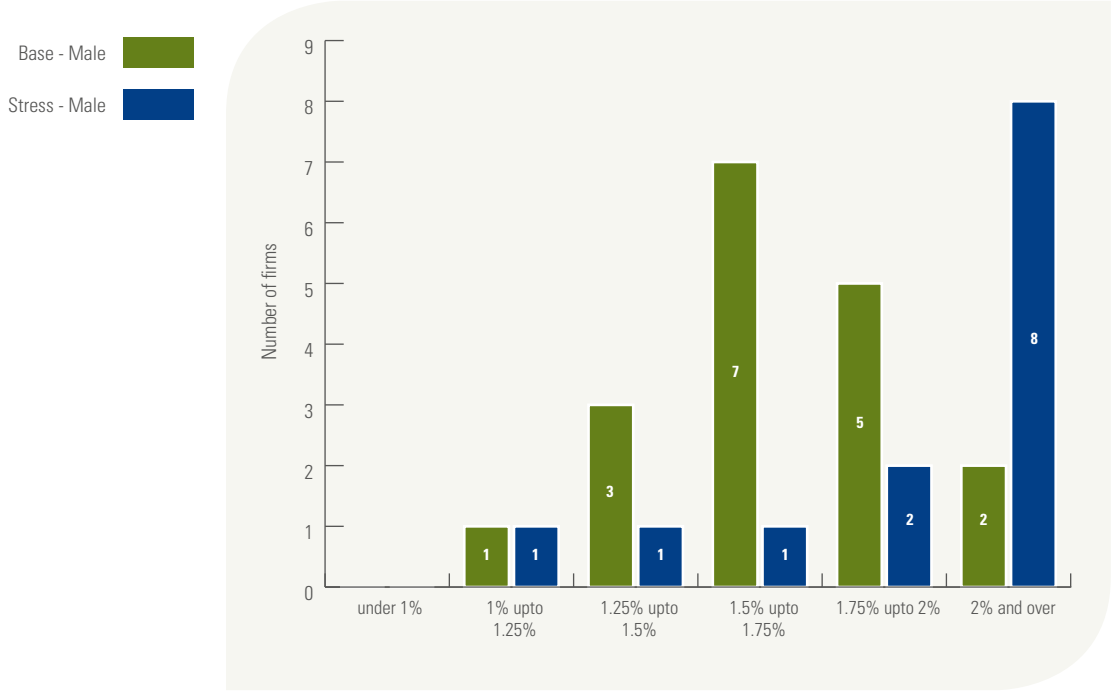


The majority of firms use a version of the CMI model for annuity business mortality improvements, which demonstrates that it has become the industry standard approach. A range of versions is currently in use, which is likely due to the time it takes firms to get comfortable with the results of the latest models, evidenced in the results shown in Graph 7.8.3d, above. For year end 2014 results, three quarters of respondents are using either the 2013 or the 2012 CMI model to set future mortality improvements for annuity business.

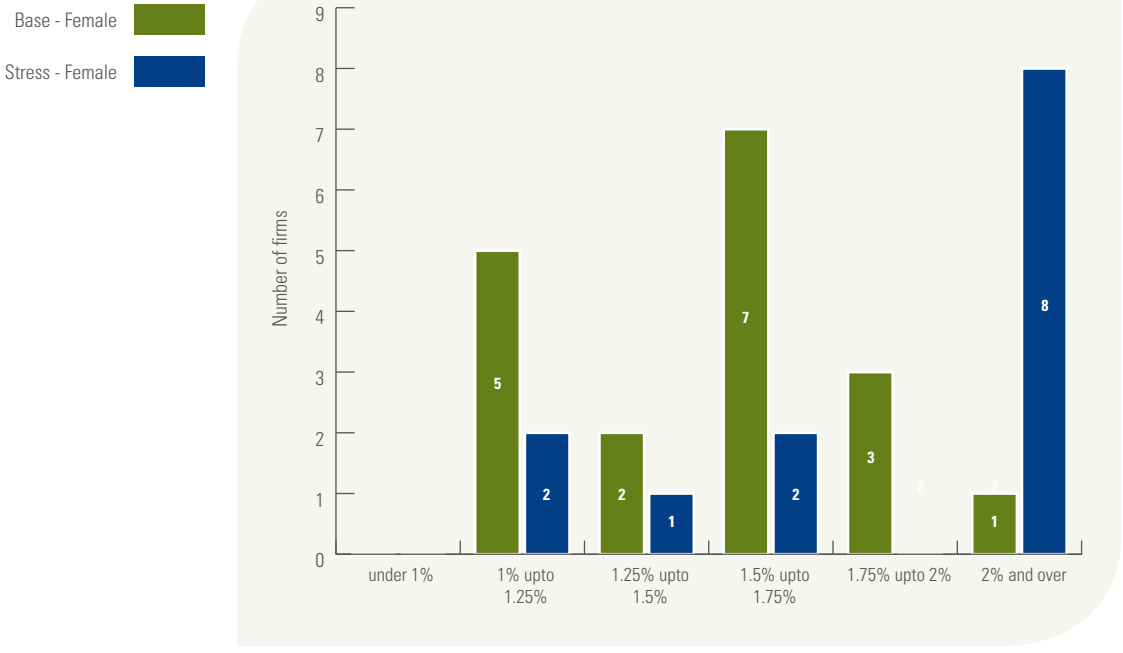
Graph 7.8.3e:
Base scenario - If you use the CMI model, do you use the advanced or core version of the model



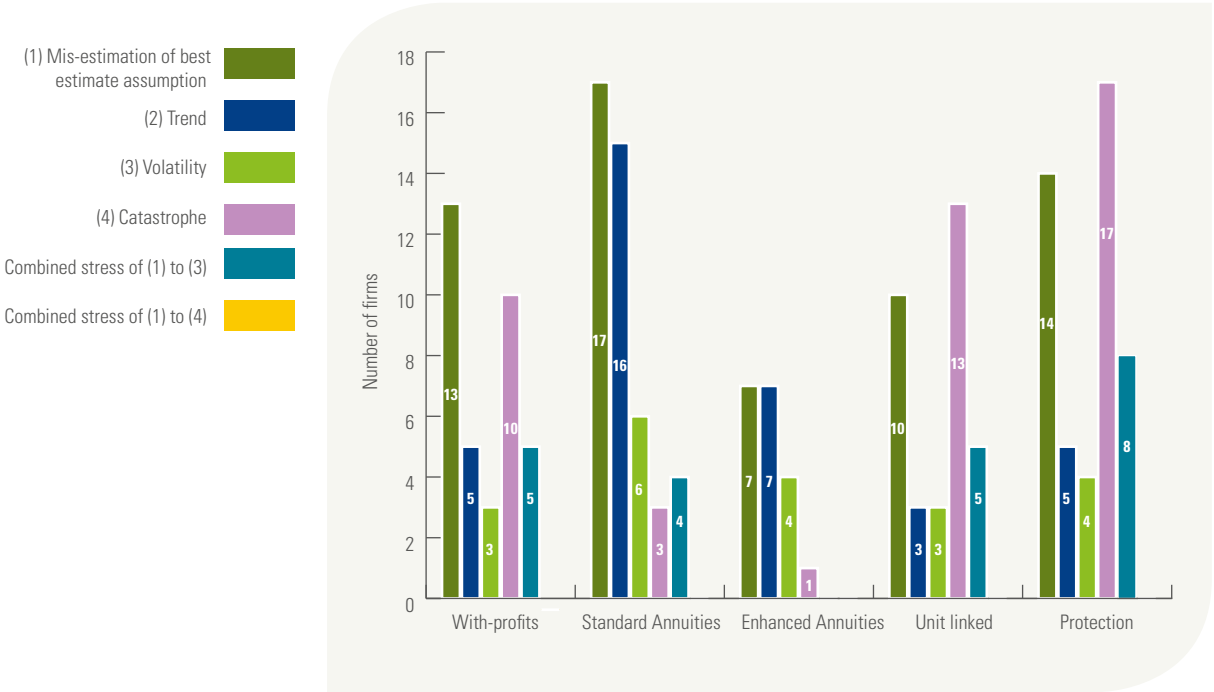
Graph 7.8.3f:
What is your long term improvement factor (CMI model) for males?



Graph 7.8.3g:
What is your long term improvement factor (CMI model) for females?



Graph 7.8.4:
Which of the following 1-in-200 mortality / longevity stresses do you apply?



Level of mortality stresses applied

The tables below summarise what levels of stress are applied to mortality for each class of business. Note that not all firms who indicated the type of stress applied also provided the level of the stress applied and some firms described their stress in a way that was inconsistent with the other responses – such data points were excluded from the analysis.

Table 7.8.5a:
Levels of 1-in-200 mortality / longevity stresses applied for With-profits business

With-profits	Minimum %	Median %	Maximum %
(1) Mis-estimation	5.0%	15.0%	20.0%
(2) Trend	1.0%	1.5%	1.8%
(3) Volatility *			
(4) Catastrophe	0.00%	0.15%	3.00%
Combined stress of (1) to (3)	15.0%	20.0%	20.0%

(*): not shown as only one respondent

Table 7.8.5b:
Levels of 1-in-200 mortality / longevity stresses applied for Standard Annuities business

Standard Annuities	Minimum %	Median %	Maximum %
(1) Mis-estimation	1.2%	10.0%	20.0%
(2) Trend	1.0%	1.5%	1.8%
(3) Volatility	0.4%	0.6%	0.8%
(4) Catastrophe*			
Combined stress of (1) to (3)	13.0%	17.5%	31.0%

(*): not shown as only one respondent

Table 7.8.5c:
Levels of 1-in-200 mortality / longevity stresses applied for Enhanced Annuities business

Enhanced Annuities	Minimum %	Median %	Maximum %
(1) Mis-estimation	1.2%	11.5%	20.0%
(2) Trend	1.0%	1.3%	2.1%
(3) Volatility	0.4%	0.6%	0.8%
(4) Catastrophe*			
Combined stress of (1) to (3)			

(*): not shown as only one respondent

Table 7.8.5d:
Levels of 1-in-200 mortality / longevity stresses applied for Unit linked business

Unit linked	Minimum %	Median %	Maximum %
(1) Mis-estimation	10.0%	15.0%	20.0%
(2) Trend	1.0%	1.5%	1.5%
(3) Volatility*			
(4) Catastrophe	0.00%	0.18%	2.0%
Combined stress of (1) to (3)	15.0%	15.0%	20.0%

(*): not shown as only one respondent

Table 7.8.5e:
Levels of 1-in-200 mortality / longevity stresses applied for Protection business

Protection	Minimum %	Median %	Maximum %
(1) Mis-estimation	8.0%	20.0%	46.8%
(2) Trend	1.0%	1.5%	2.0%
(3) Volatility			
(4) Catastrophe	0.0%	0.3%	40.0%
Combined stress of (1) to (3)	6.5%	17.0%	20.0%

(*): not shown as only one respondent

Stress levels continue to vary quite widely for all classes of business, and this is a similar picture to last year.

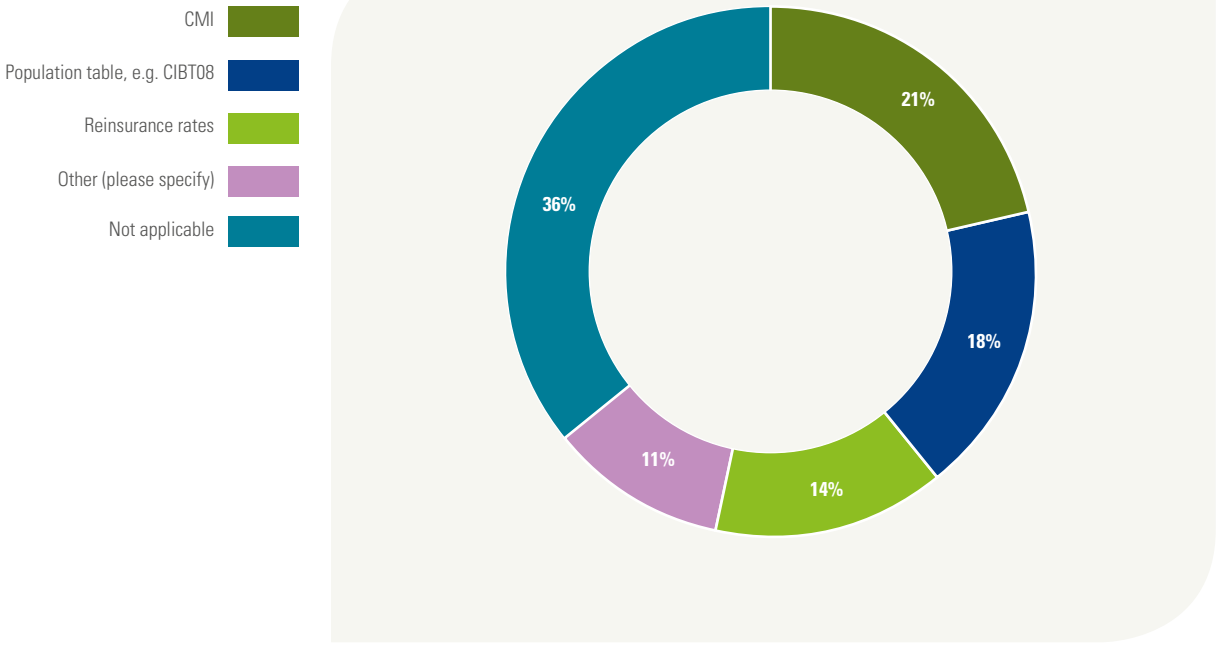
For volatility and catastrophe stresses there were a limited number of responses, and where only one response was provided we have excluded this result from the analysis.

The catastrophe stress for protection business where more responses were received showed a wide range of magnitudes of responses from a minimum of almost 0% to a maximum of 40%. We note that the firm with the stress of 40% has a small book of protection business.

7.9 INSURANCE RISK - MORBIDITY

Morbidity risk can be significant for firms writing health based protection products, or offering rider benefits on life-insurance products such as accelerated death benefits. The data available to assess and monitor these risks can be quite sparse. We asked firms about their approach to assessing morbidity risk.

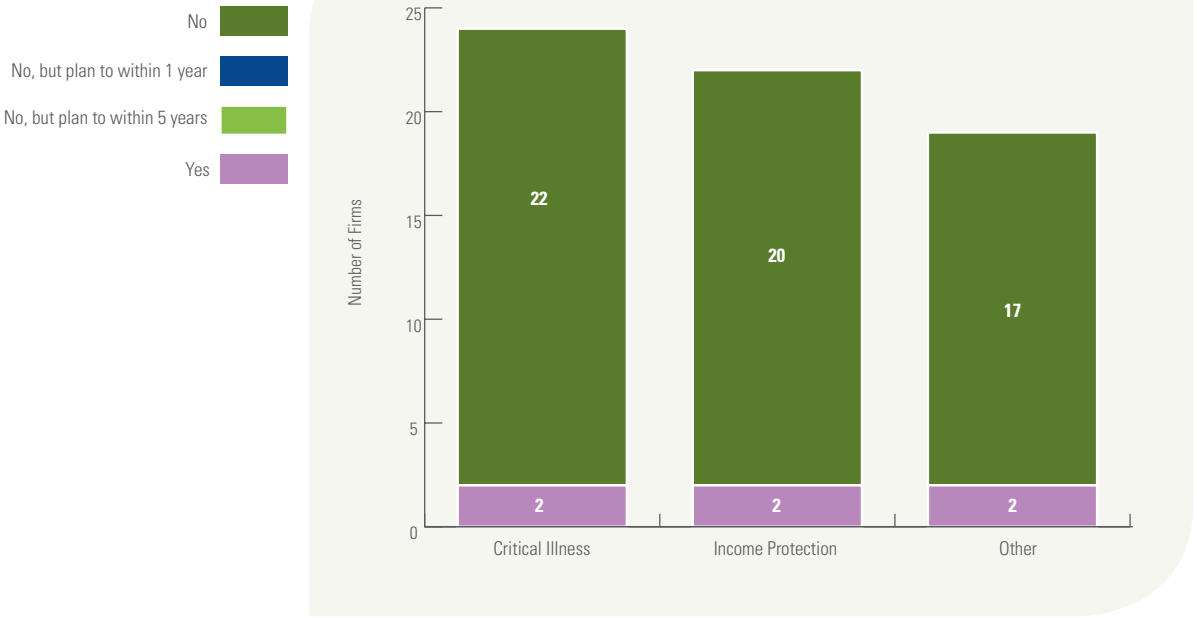
Graph 7.9.1:
In your BEL calculation, what is the primary morbidity table that you use?



The graph above shows that there is considerable dispersion between firms in how they determine their morbidity assumptions for the affected classes of business. Almost 40% of respondents said they use either a CMI model or a population table to derive their base morbidity assumptions.

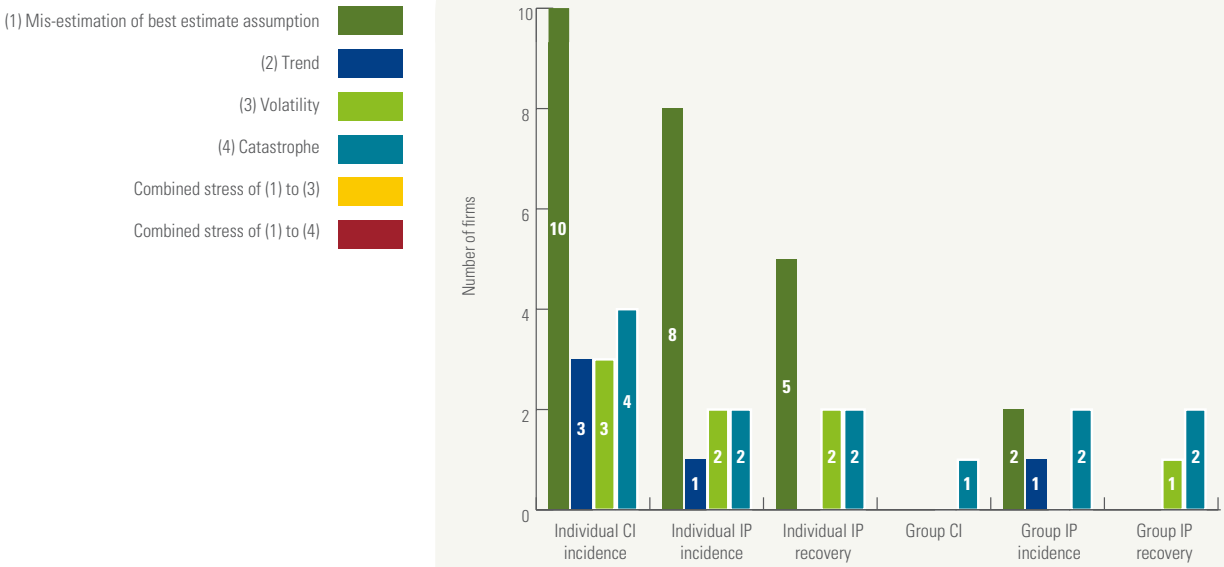
Morbidity stress

Graph 7.9.2:
Do you use a stochastic time series model of future morbidity for the following products?



Similar to the responses seen for mortality rate estimation, very few respondents use a stochastic approach to setting morbidity rates.

Graph 7.9.3:
If you apply a morbidity stress, which of the following do you apply to your incidence and inception rates?



The most common form of stress applied to base morbidity assumptions is the mis-estimation stress and this is true across the main classes of critical illness and income protection business.

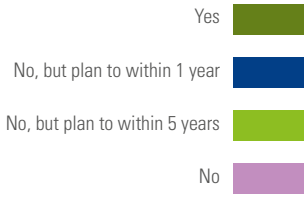
Across Group-type business, the use of a catastrophe stress is more commonplace. No respondents indicated that a combined stress was tested.

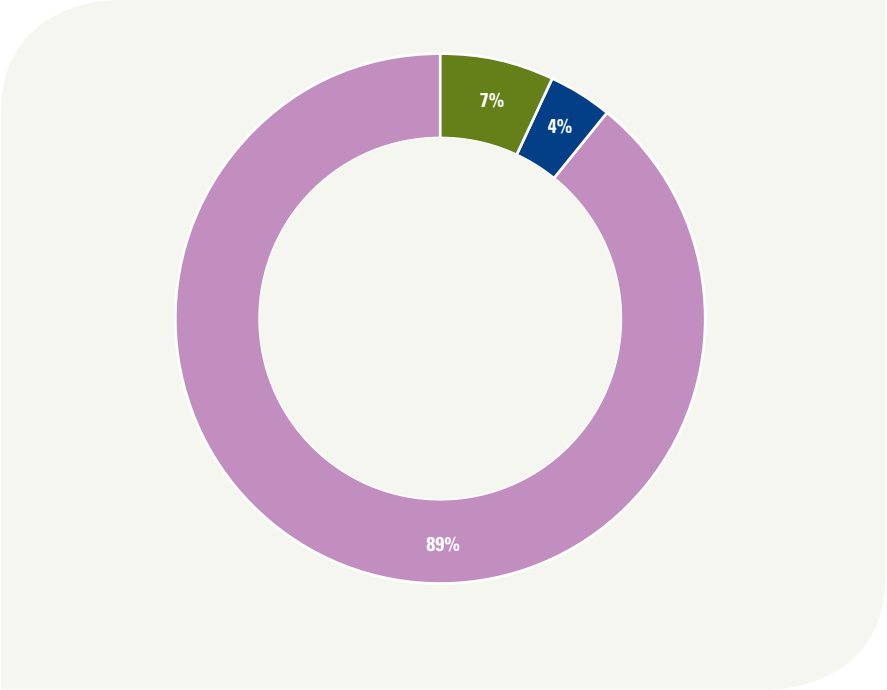
7.10 INSURANCE RISK – LAPSES

In this section we consider life insurance risk capital in relation to persistency (lapse) risk. Persistency risk is the risk that future lapse rates differ from the expected levels that are allowed for in calculating the best estimate liabilities. Persistency rates are highly dependent on the firm and products, hence there is less consistency across firms.

Dynamic policyholder lapse behaviour

Graph 7.10.1:
Do you capture dynamic policyholder lapse behaviour in your best estimate liability model?

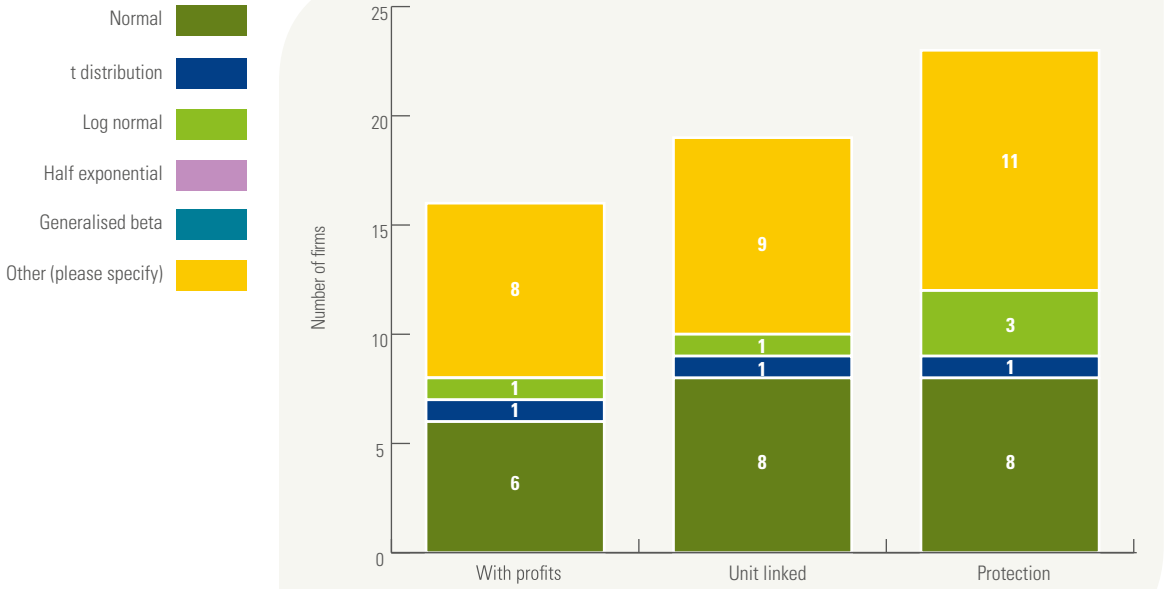




Dynamic lapse modelling aims to capture changes in the policyholders' propensity to lapse in different scenarios. Most firms do not yet incorporate dynamic lapses into their best estimate liability model. In spite of the responses provided, this is an area in which we expect we may see development.

Statistical distribution used to model persistency risk

Graph 7.10.2:
What statistical distribution do you use for modelling persistency risk?

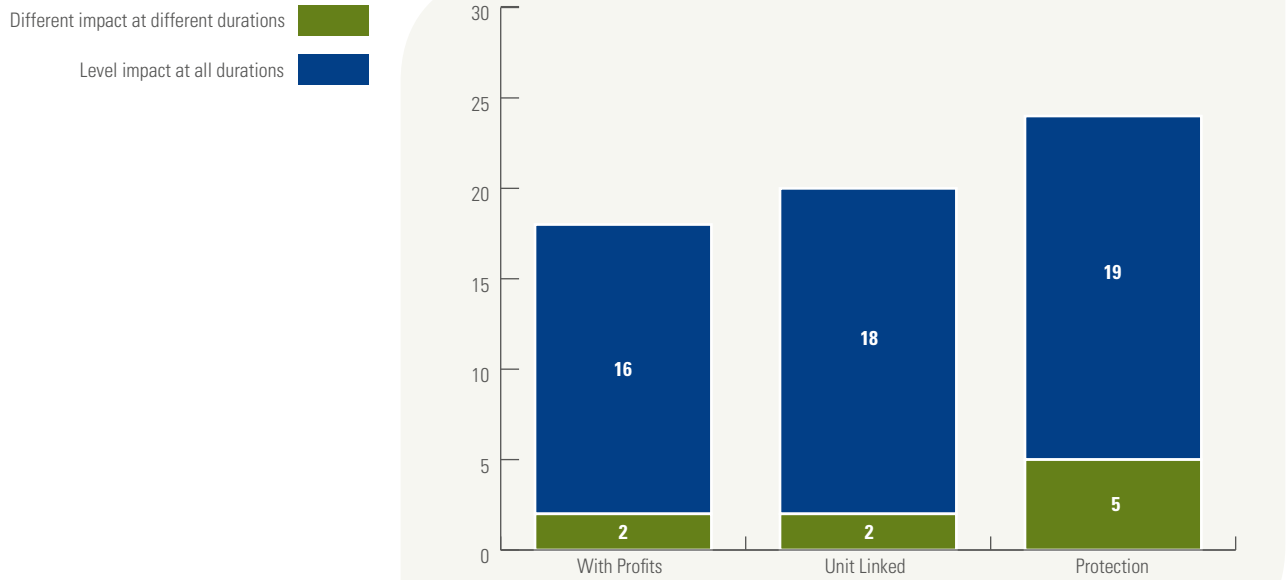


We asked firms which statistical distribution, where applicable, they use for the modelling of their persistency risk. Given the limited available internal historical data many firms opted for a normal distribution, which could be viewed as a proportionate and tractable approach. Some firms have allowed for the fact that the minimum possible lapse rate is 0% and so opted for a log normal distribution which has a lower bound of 0%. We asked firms whether they used a generalised beta distribution because the generalised beta distribution has a lower bound of 0% and an upper bound of 100%, just like the theoretical constraints on a lapse rate. However no firms are using the generalised beta distribution.

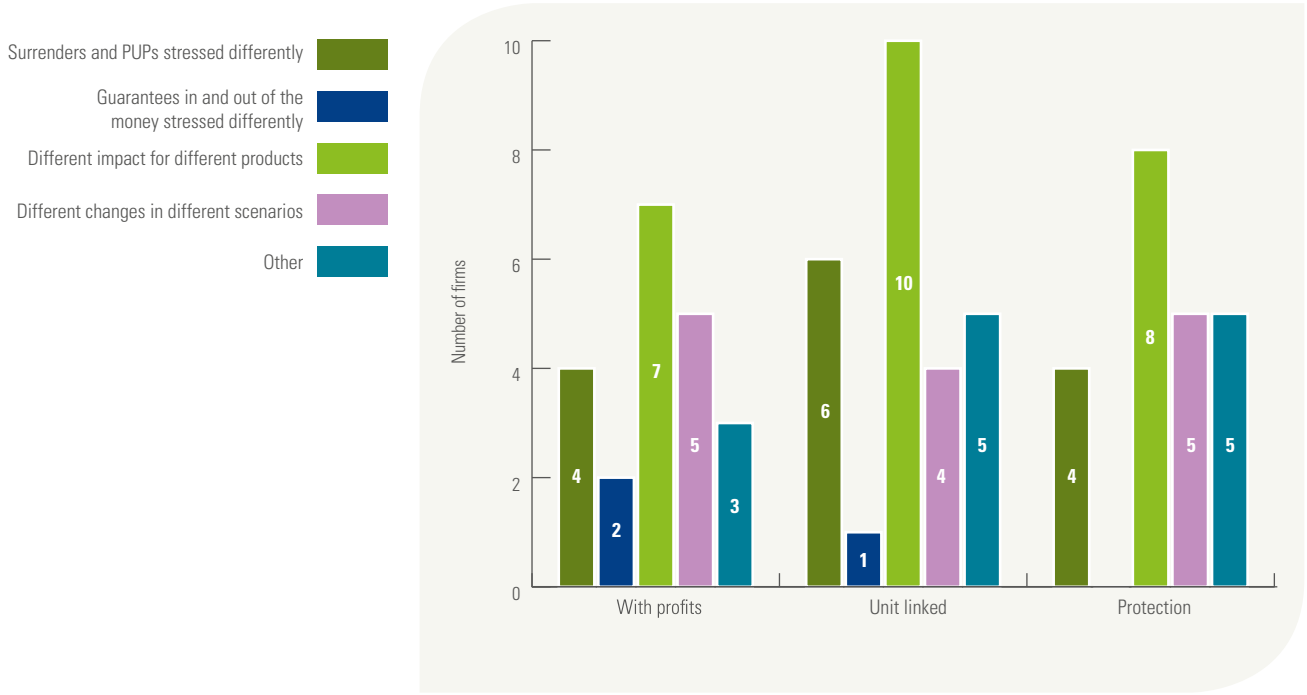
For firms using other distributions, these included the three-parameter shifted log-normal and the logistic distribution.

Approach to persistency stress tests

Graph 7.10.3:
Which of the following approaches is used for your persistency stress tests?

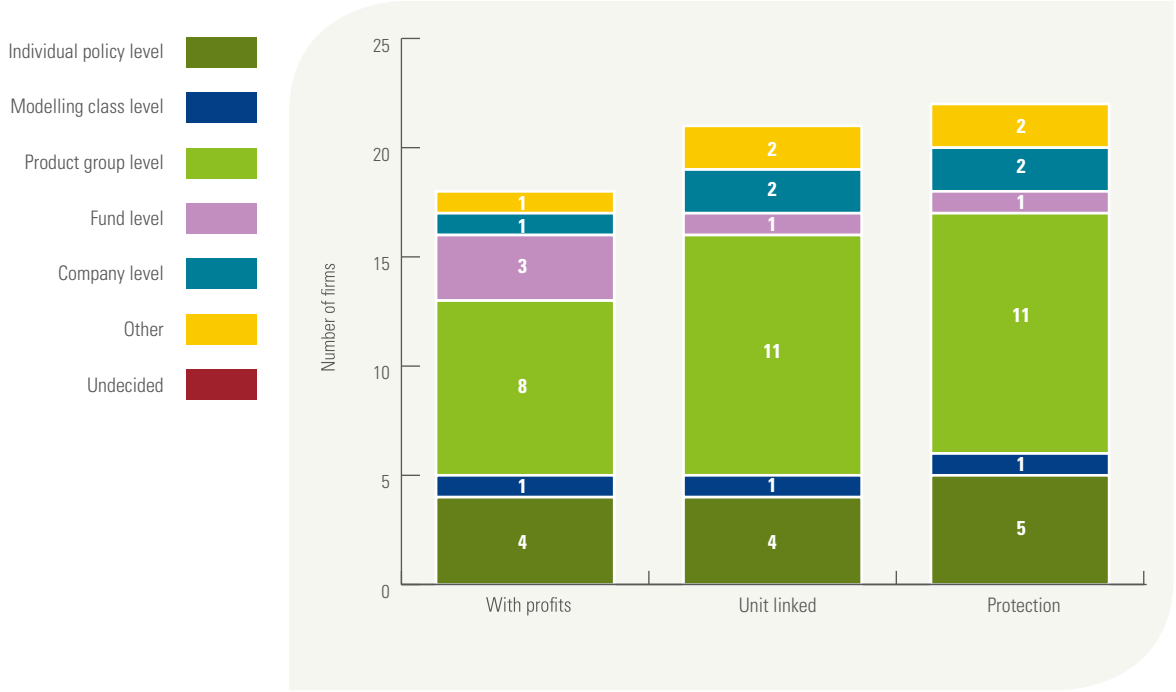


Graph 7.10.4:
At what level of granularity do you apply your persistency stress tests?



The most onerous direction of the lapse stress

Graph 7.10.5:
At what level do you determine which direction is the most onerous policyholder behaviour stress?



We asked firms how they determine the biting lapse stress between increased lapses and decreased lapses. Five firms use individual policy data to determine the direction of stress for all of the products they hold. This is in line with the strict requirement but can be difficult to implement in existing models given the volume of data. The majority, though, model at the product group level.

Level of lapse stresses applied

The tables below summarises the level of lapse stresses applied by firms.

Table 7.10.6a:
With-profits 1-in-200 lapse increase and lapse decrease as a percentage change

	Lapse increase			Lapse decrease		
Duration	Minimum %	Median %	Maximum %	Minimum %	Median %	Maximum %
First Year	33%	50%	101%	21%	50%	78%
Subsequent Years	33%	50%	80%	21%	50%	50%

Table 7.10.6b:
Unit linked 1-in-200 lapse increase and lapse decrease as a percentage change

	Lapse increase			Lapse decrease		
Duration	Minimum %	Median %	Maximum %	Minimum %	Median %	Maximum %
First Year	40%	50%	101%	18%	50%	78%
Subsequent Years	35%	50%	70%	18%	50%	50%

Table 7.10.6c:
Protection 1-in-200 lapse increase and lapse decrease as a percentage change

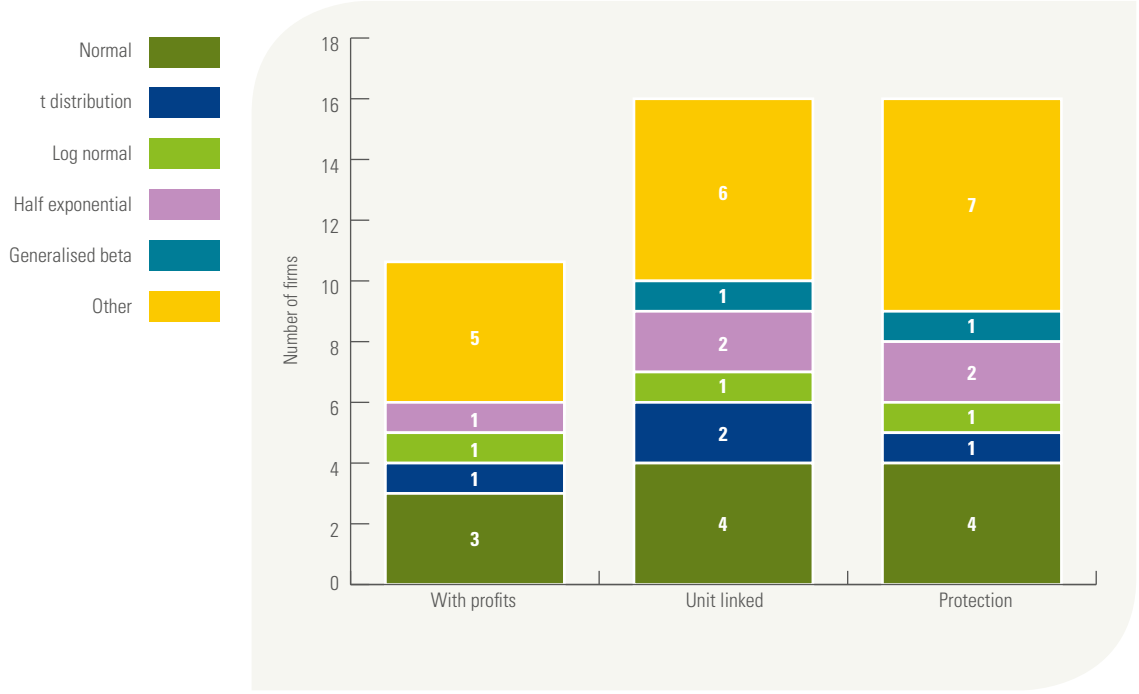
	Lapse increase			Lapse decrease		
Duration	Minimum %	Median %	Maximum %	Minimum %	Median %	Maximum %
First Year	13%	50%	101%	10%	50%	100%
Subsequent Years	4%	45%	70%	4%	50%	100%

7.11 INSURANCE RISK – MASS LAPSE

In this section we consider life insurance risk capital in relation to mass lapse risk. In many risk taxonomies, the lapse up and lapse down stresses relate to a prolonged increase or decrease in lapse rates over the lifetime of the affected policies. In contrast, the mass lapse stress relates to a mass lapse event over a short period of time. During the event a significant percentage of policyholders lapse. The mass lapse stress relates to a mass lapse event which is not expected to recur.

Approach to modelling mass lapse risk

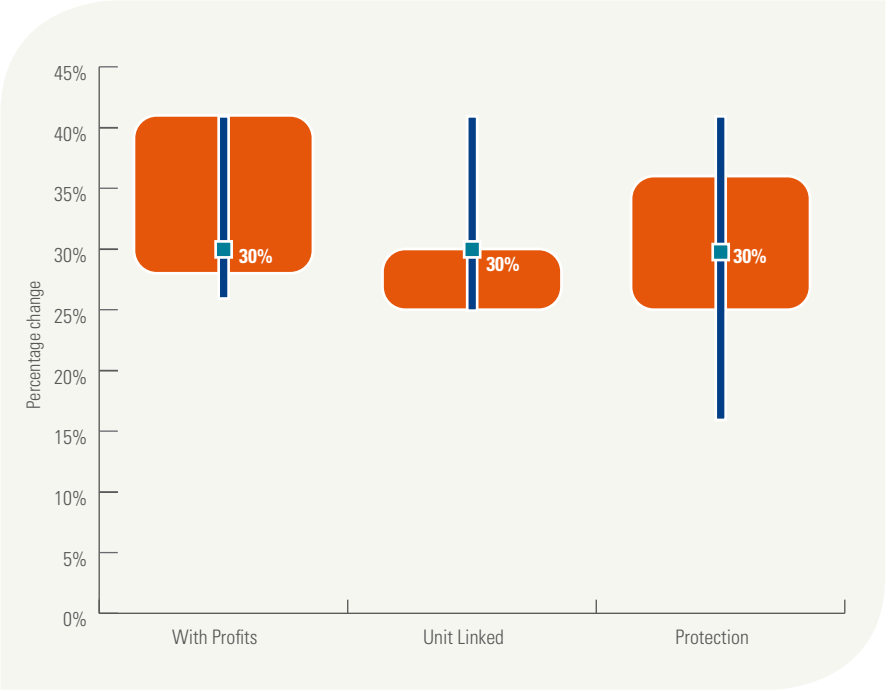
Graph 7.11.1:
Which statistical distribution do you use to model mass lapse risk?



We asked firms what probability distribution they used to model their mass lapse risk. A number use expert judgement where an empirical distribution is used. There was a mixture of responses between the normal, student's t, log-normal and half-exponential distributions.

Levels of mass lapse stresses applied

Graph 7.11.2:
Please specify your 1-in-200 mass lapse stress by product as a percentage change. (% applied above best estimate lapses)

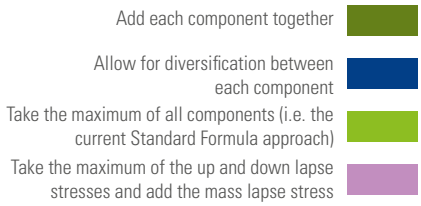


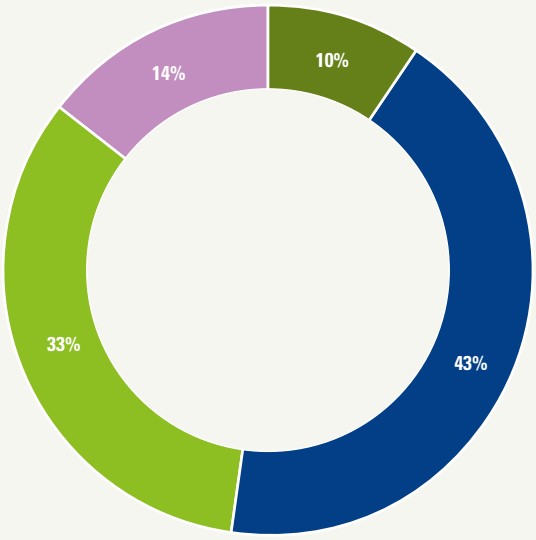
Note that the graph shows as a box and whisker plot the distribution of mass lapse. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile. Note that where whiskers have been truncated, a label indicates the maximum value taken.

Firms use a 30% mass lapse stress on average, across all three product types. Note, we removed one firm's response as this was an outlier.

Method of aggregation of lapse stresses

Graph 7.11.3:
What method do you use to aggregate the lapse stresses?

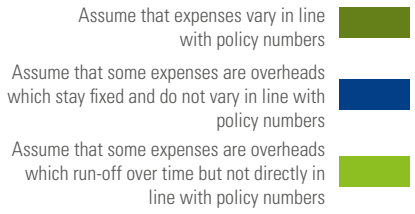


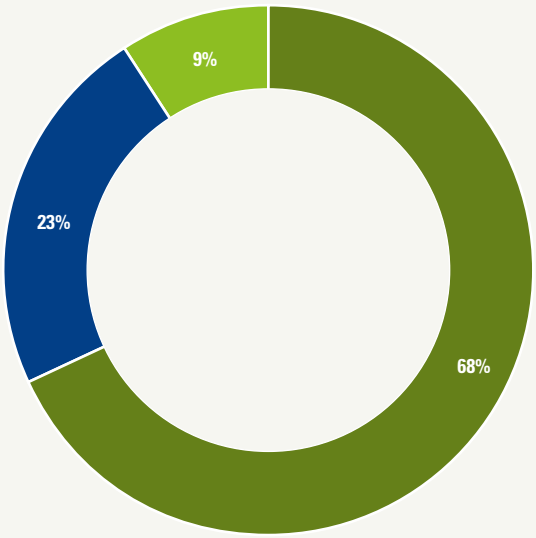


We asked firms to describe their approach to dependencies between lapse stresses. The most common approach was to allow for diversification between different components. Many of these firms go down to a product group level in order to determine whether lapse up or lapse down is the biting stress. Some firms take the maximum of the up and down lapse stress. This was particularly common for firms who look to a granular level e.g. individual policy level, in order to determine the more onerous lapse direction.

Expense assumptions used in the mass lapse stress

Graph 7.11.4:
What assumption do you make about expenses in your mass lapse stress?





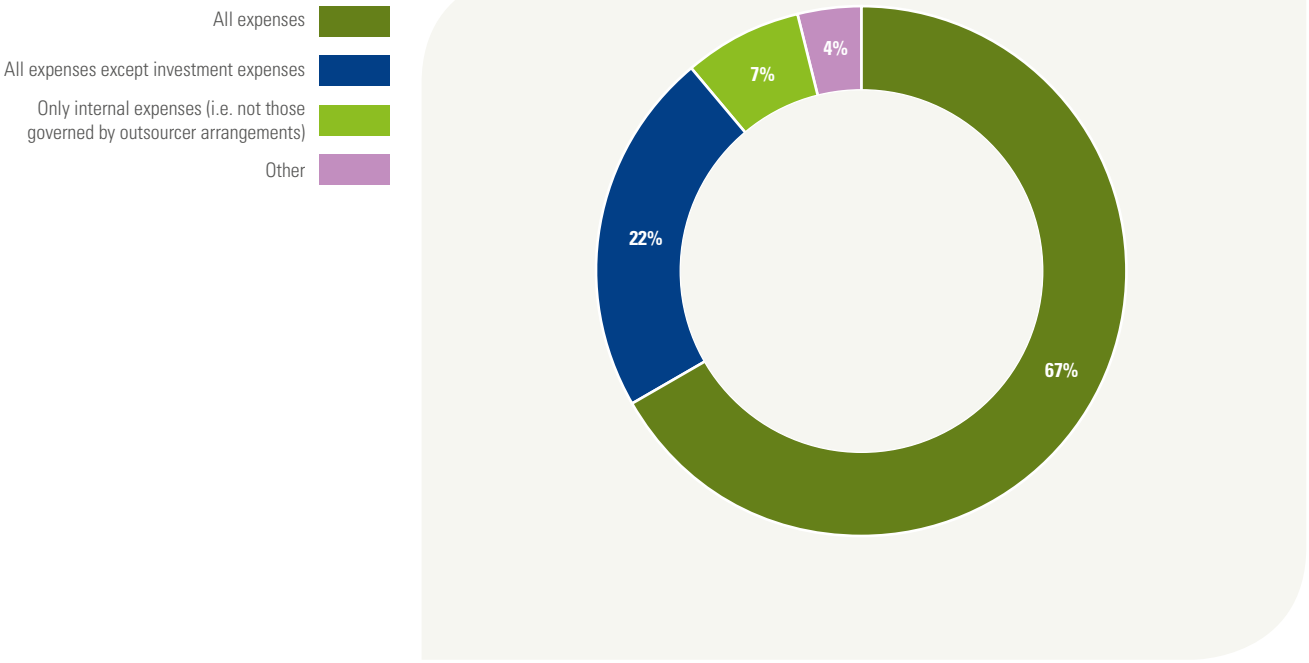
We asked firms how expenses are adjusted after a mass lapse scenario. Most firms vary all expenses in line with policy numbers.

7.12 INSURANCE RISK – EXPENSES

In this section we consider life insurance risk capital in relation to expense and expense inflation risk. We focus on the type and size of expense stress.

Expenses subject to the 1-in-200 expense stress

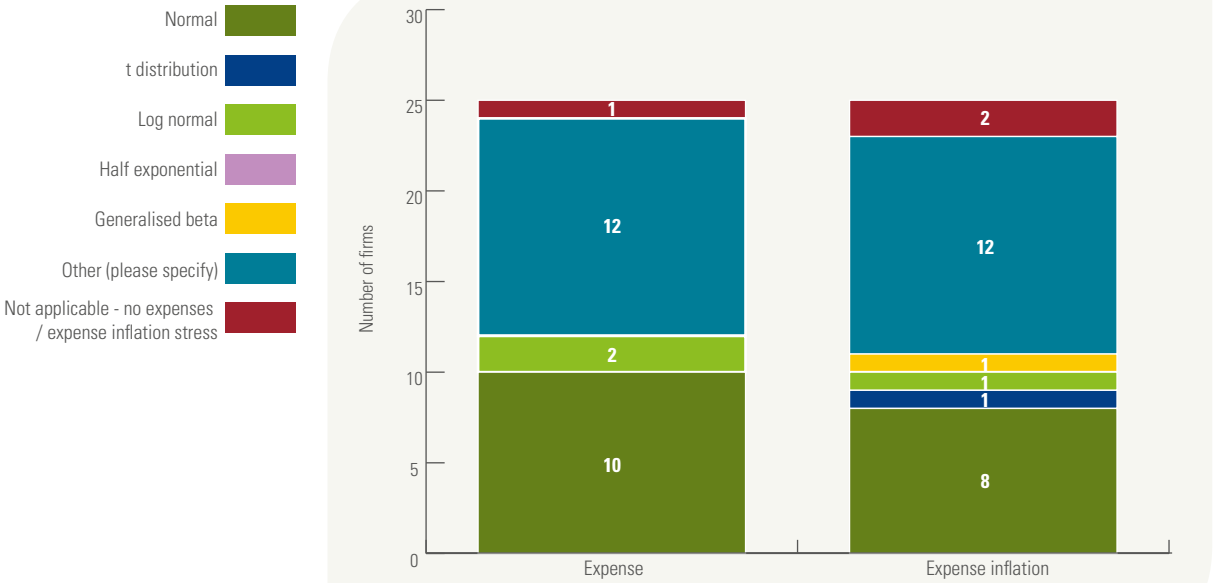
Graph 7.12.1:
Which of your expenses are subject to the 1-in-200 expense stress?



Most firms apply an expense stress to all expenses, however there are firms which limit the extent of the stresses they apply, based on the nature of the expense.

Statistical distribution used to model expense and inflation risk

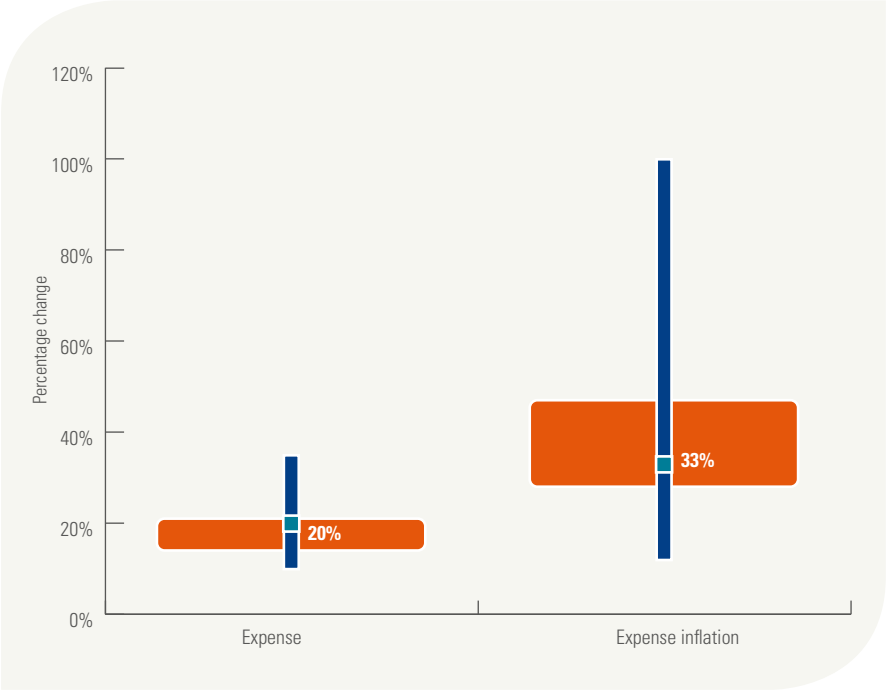
Graph 7.12.2:
Which statistical distribution do you use for modelling expense and expense inflation risks?



We asked firms to describe the statistical distribution that they use to model expense risks including expense inflation. A significant number of firms use the normal distribution; however most respondents said they used another approach. The other approaches included the standard formula, expert judgement and the logistic distribution.

Level of expense and expense inflation stresses applied

Graph 7.12.3:
Please specify your 1-in-200 expense and expense inflation stresses, as a percentage change.



Note that the graph shows as a box and whisker plot the distribution of expense stress. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

We asked firms to specify their 1-in-200 expense and expense inflation stresses as a percentage change (e.g. if the inflation assumption goes from 4% in base to 5% in the inflation increase stress, the answer would be 25%). Note that we have removed those firms who provided an additive inflation stress.

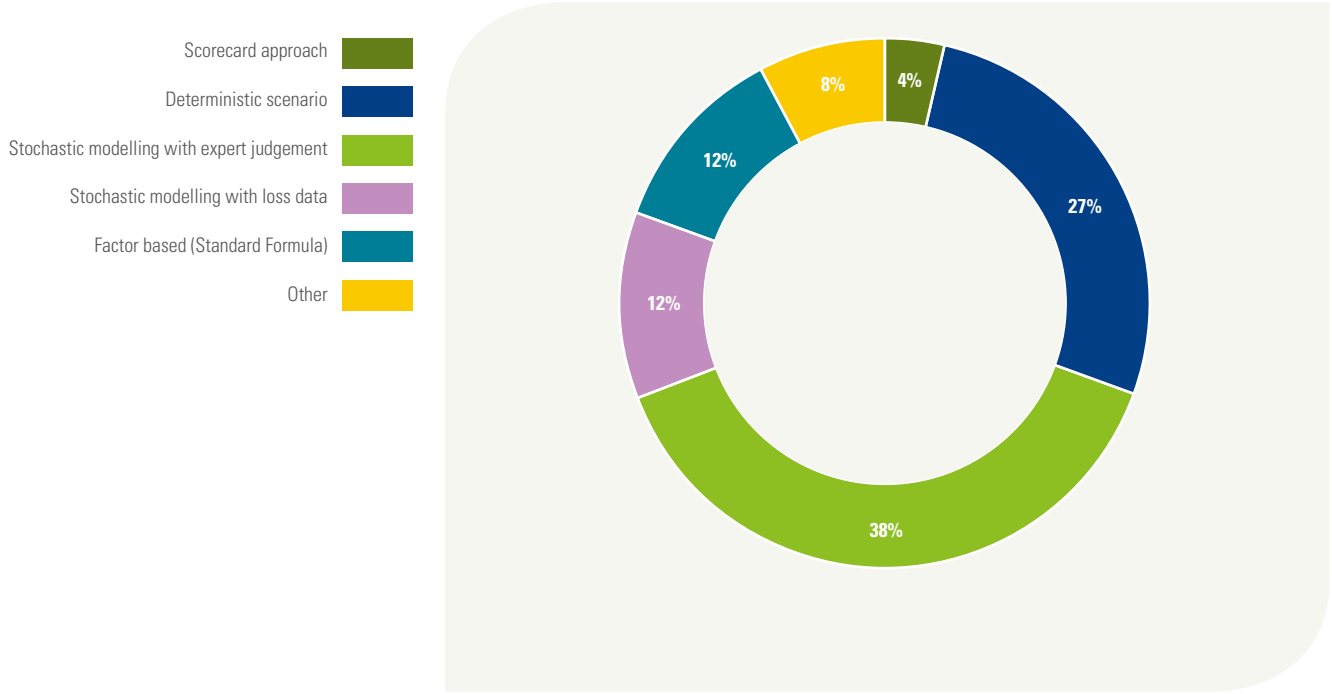
7.13 OPERATIONAL RISK

Operational risk is the risk of loss arising from inadequate or failed internal processes, personnel and systems, or from external events.

We have focused our questions on the approach to modelling operational risk and how the Pillar 2 method compares to the standard formula.

Approach to modelling operational risk loss

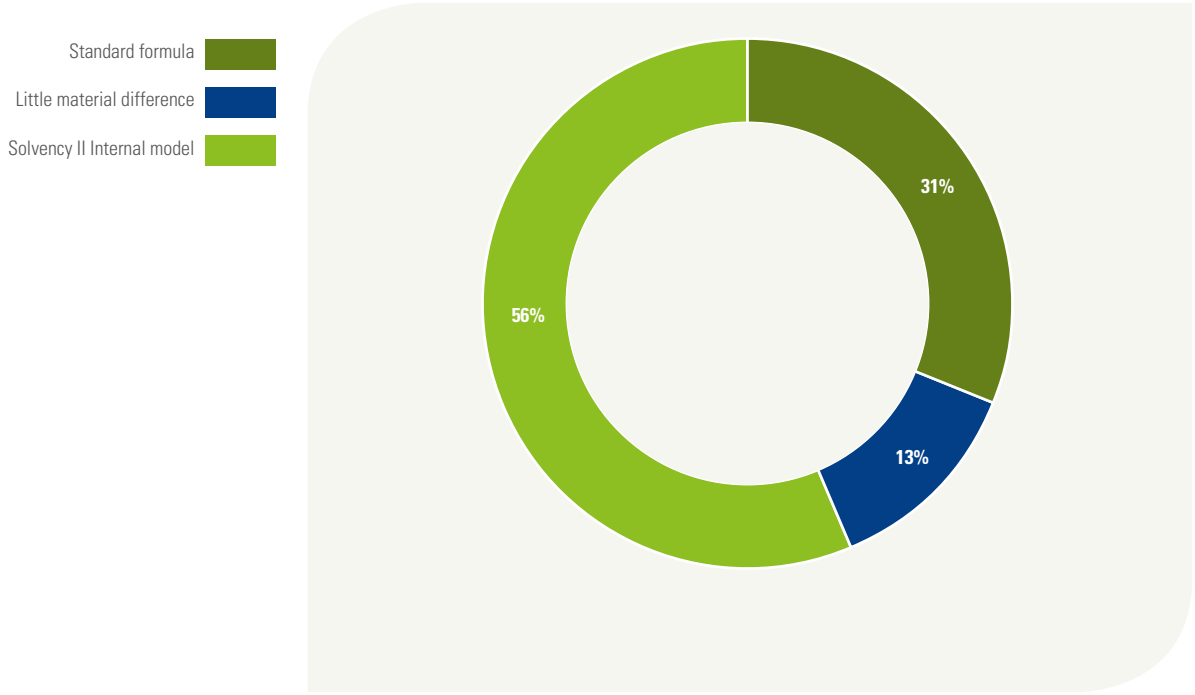
Graph 7.13.1:
What technique best describes your approach to modelling operational risk loss?



We asked firms to describe the technique they use to model operational risk. Few firms responded that they use the Standard Formula or another factor based approach. Predominantly, where firms used stochastic modelling, this was based on expert judgement rather than loss data.

Comparison of Standard Formula operational risk capital with Solvency II internal model

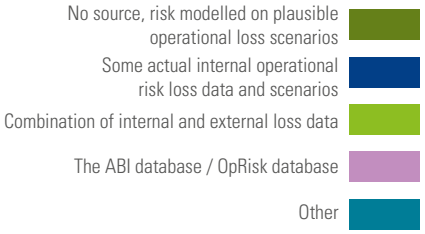
Graph 7.13.2:
Does Standard Formula or Solvency II Internal Model produce the highest operational risk capital (post diversification)?

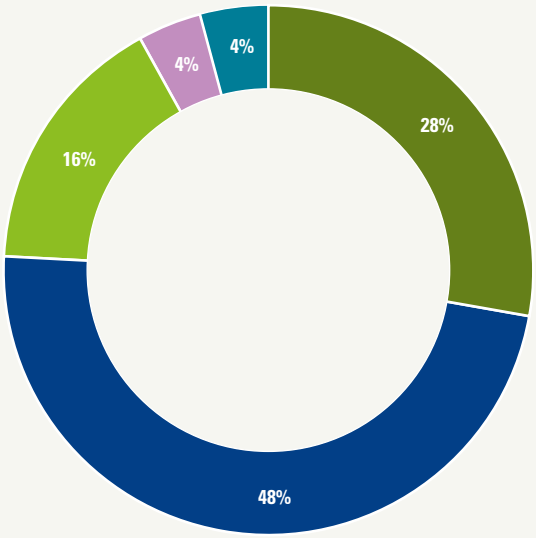


The majority of firms indicated that Solvency II internal model produced the highest operational risk capital.

Sources of operational risk loss data

Graph 7.13.3:
What is the primary source of your operational risk loss data?





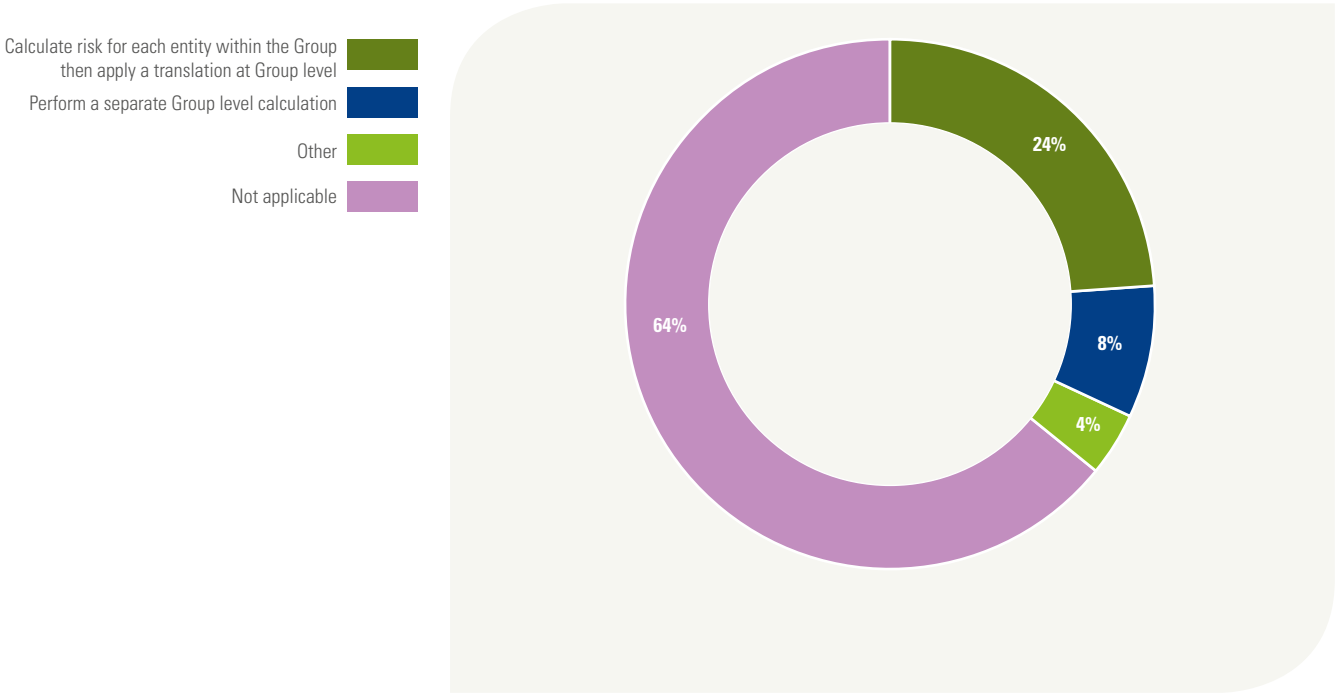
We asked firms to describe the data they primarily used in order to calibrate their operational risk. Most commonly, respondents said that they used some internal loss scenarios. However a number of firms did not use operational risk loss data.

7.14 GROUP CURRENCY RISK

Currency risk relates to the sensitivity of assets and liabilities on the balance sheet to changes in FX rates and changes in FX volatility. This may affect groups operating in multiple countries across several currencies. Equally there may be a degree of mismatch between the denomination currency of a firm's liabilities and the assets backing those liabilities.

Allowance for Group Currency Risk

Graph 7.14.1:
How do you allow for Group Currency Risk?



For "other" the currency risk is part of the economic simulations and is aggregated as per the other risks.

7.15 AGGREGATION OF RISK

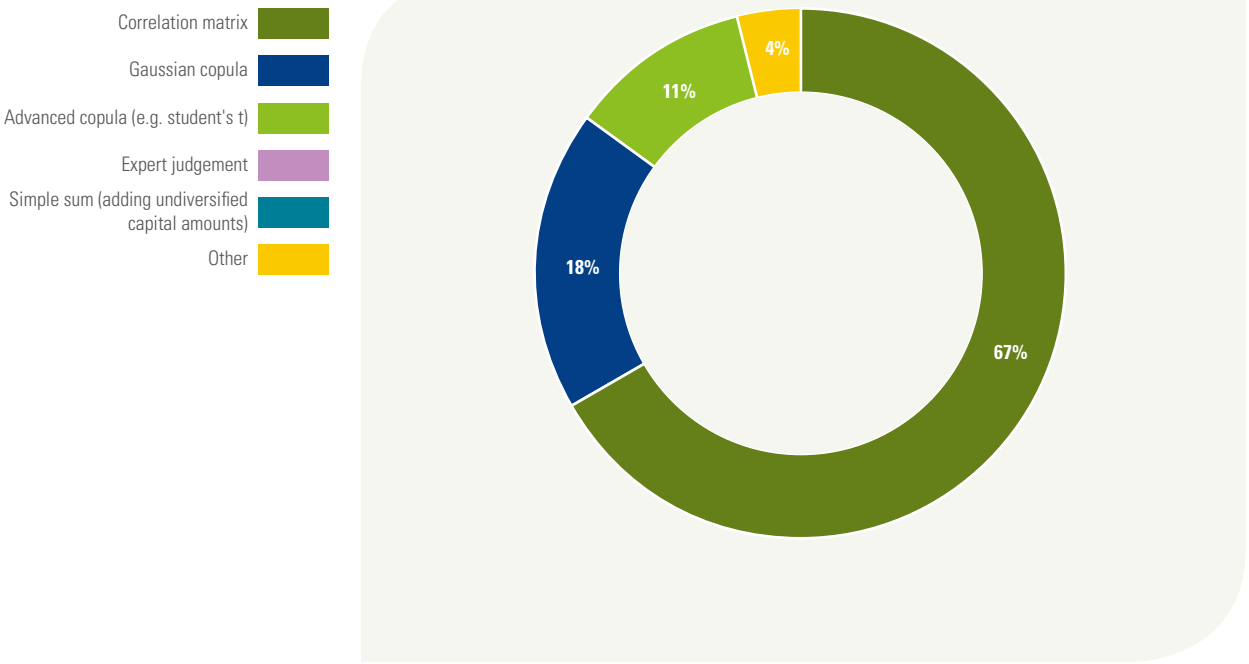
Approach to risk aggregation

We asked firms what aggregation approach they use for their Solvency II Pillar II calculations. Approaches to aggregation include using a correlation matrix or using copula techniques:

- The correlation matrix approach assumes linear loss functions and dependency. Some components may be calculated based on simulation (for example market risk) but most components are stress based and the ultimate aggregation is via a correlation matrix.
- Copula techniques imply use of a simulation based approach across the full taxonomy of risks. Copulas can allow for non-linear loss functions and non-linear tail dependency, depending on what type of copula is chosen. For example, Gaussian copulas do not allow for tail dependency, whereas this is possible under the Student's t copula.

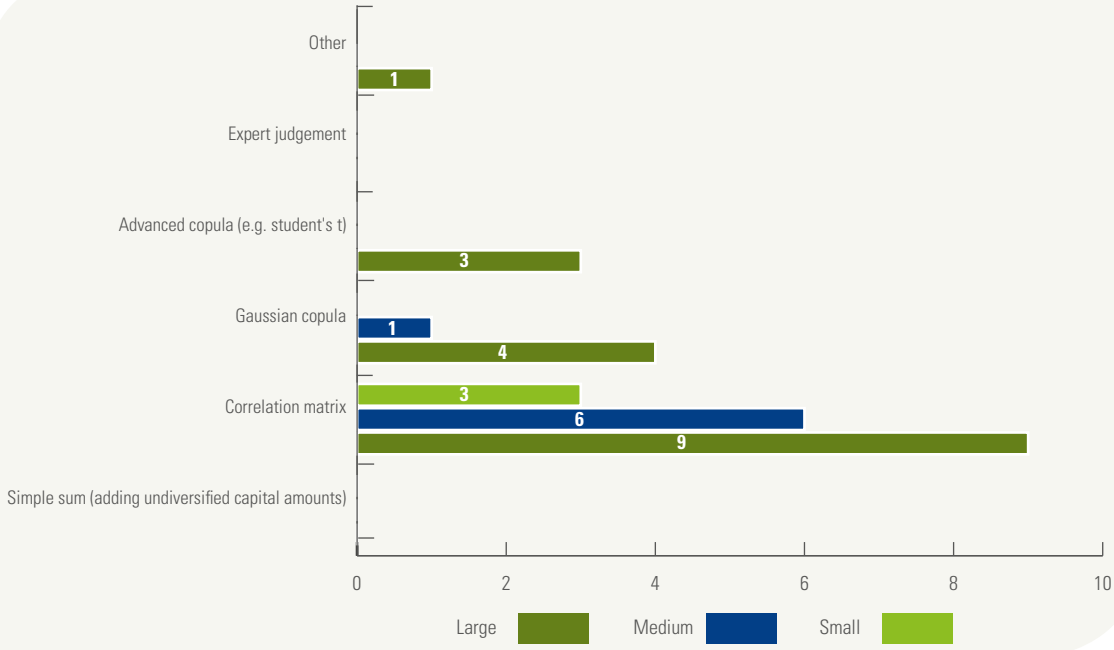
Aggregation techniques for all firms

Graph 7.15.1a:
What is your approach to risk aggregation?



Aggregation techniques split by size of firm

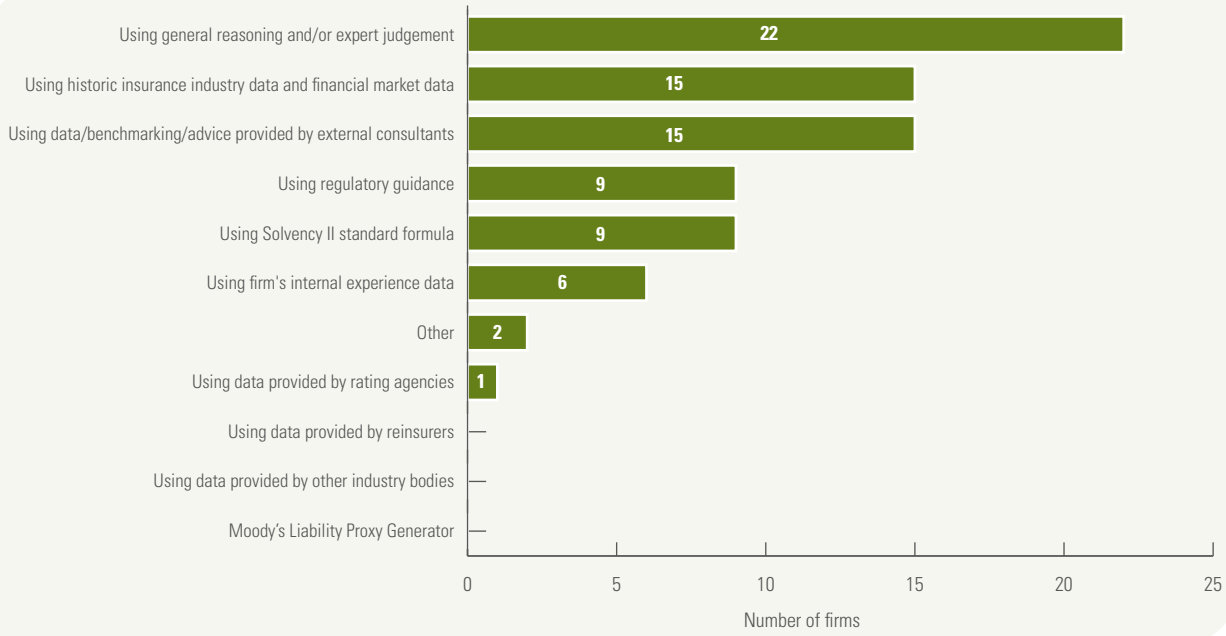
Graph 7.15.1b:
What is your approach to risk aggregation?



The proportion of firms using each method of aggregation is very similar to last year with the bulk of firms using correlation matrices [Graph 7.15.1a]. The chart above shows how aggregation techniques vary by size of firm. As expected, no small firms use the more sophisticated (copula-based) techniques [Graph 7.15.1b].

Method of setting correlations between risk categories

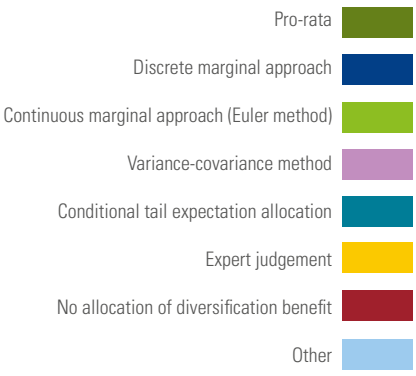
Graph 7.15.2:
If using a correlation matrix or copula approach, how have you set the correlations between different risk categories (e.g. market to insurance risks)?

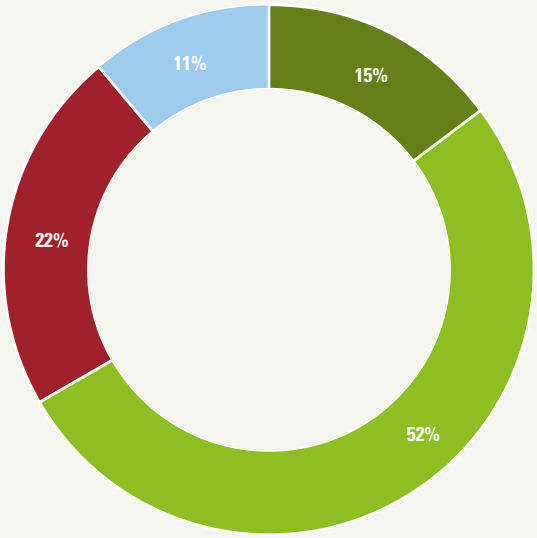


Consistent with last year's survey, general reasoning and/or expert judgement was used by most firms. There has been an increase in the use of regulatory guidance compared to last year.

Approach used to allocate capital diversification benefit

Graph 7.15.3:
What approach is used to allocate the capital diversification benefit to lower levels of granularity?





This year more firms are allocating their diversification benefits, with 78% of respondents stating they do this compared to 66% in the 2014 survey.

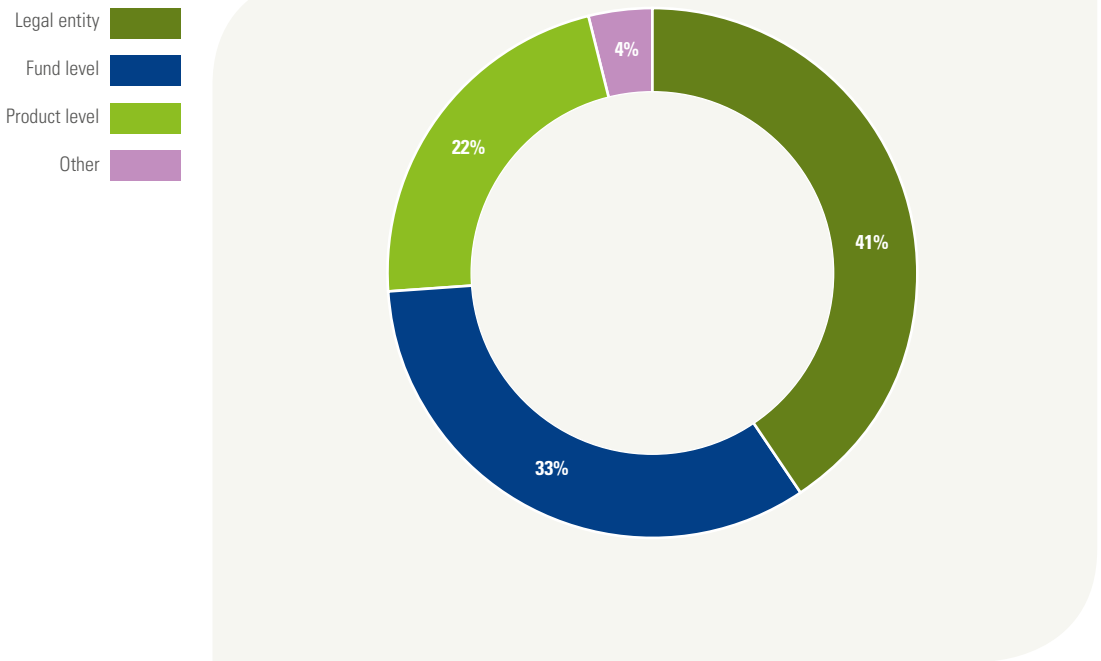
The continuous marginal approach (also known as the Euler method) is the dominant method amongst the firms allocating their diversification benefits.

Level of business that capital is allocated at

Firms allocate risk capital to more granular levels for a number of different purposes, such as:

- Supporting effective capital optimisation across the organisation
- Supporting performance evaluation
- Supporting key decision processes such as pricing and business plan projects
- Regulatory compliance and financial reporting

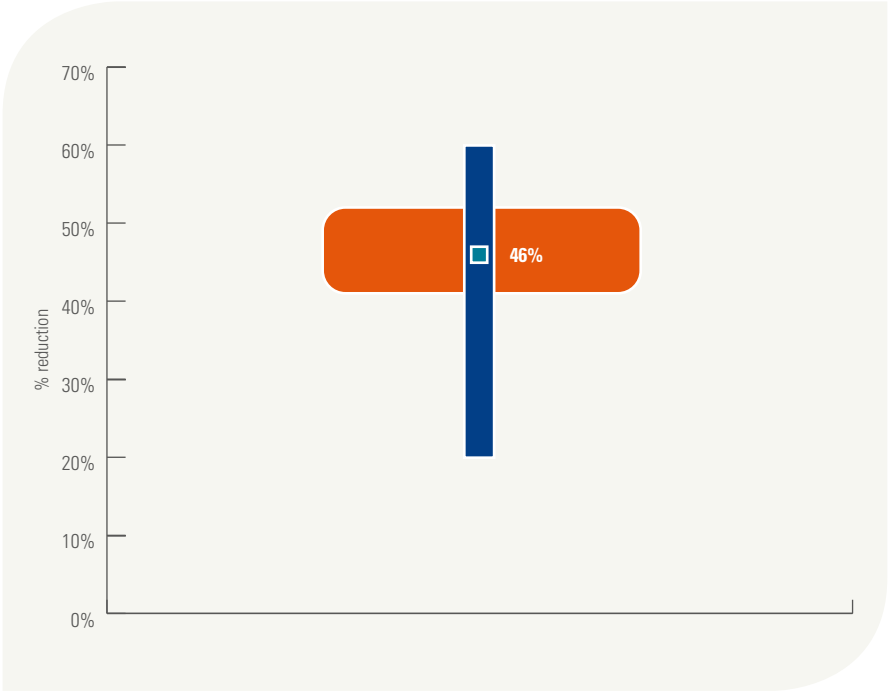
Graph 7.15.4:
At what level of business do you allocate risk capital?



The overall picture remains similar to last year, and there remains no discernible relationship between the size of firm and the granularity of capital allocation.

Magnitude of diversification

Graph 7.15.5:
How much is the capital requirement reduced by diversification?

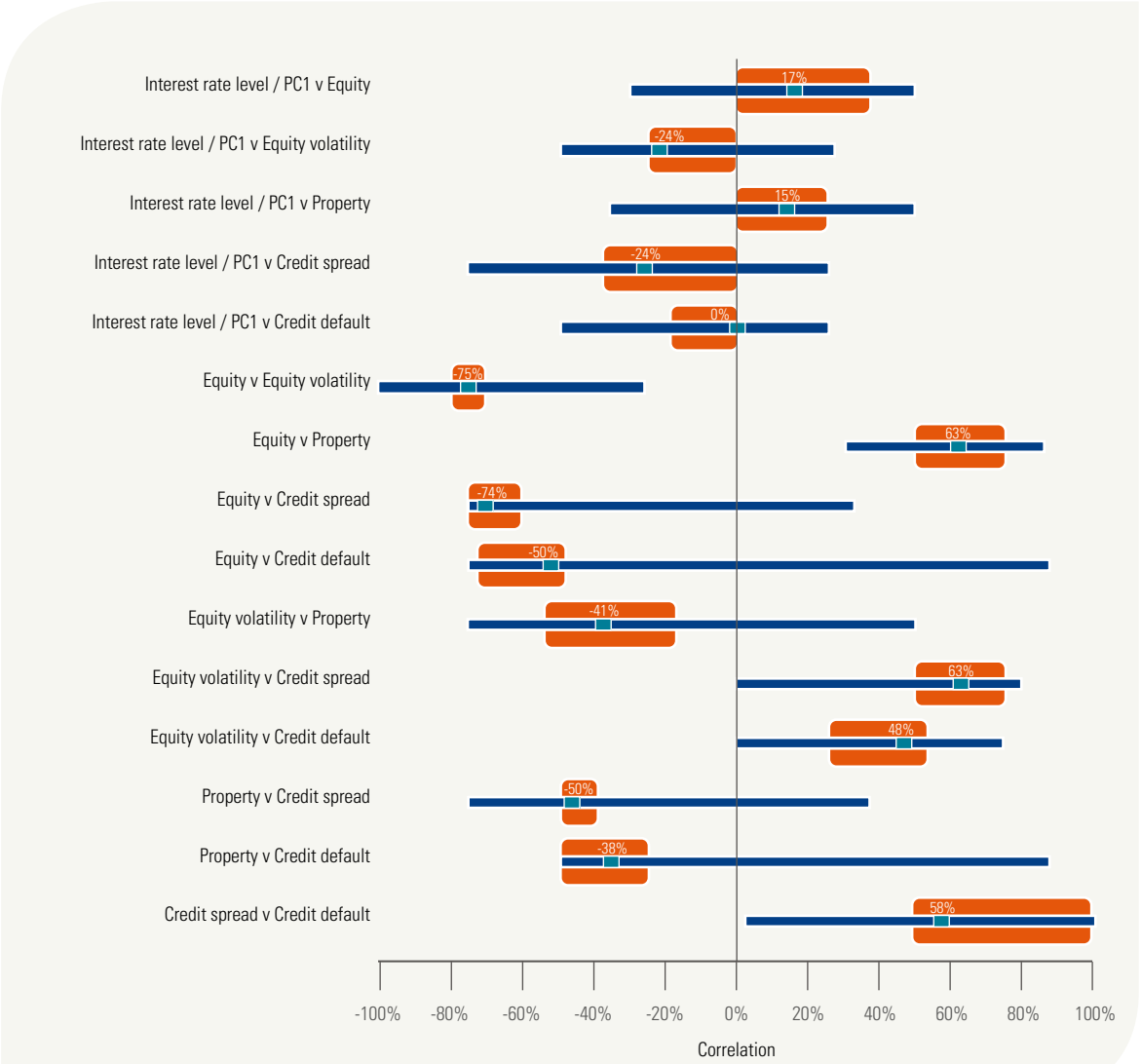


Note that the graph shows as a box and whisker plot the distribution of percentage reduction. The 'box' represents the inter-quartile range, the 'whiskers' represent the minimum and maximum survey responses, and the dot represents the median or 50th percentile.

The majority of firms reduce their capital requirements by between 41% and 51% through diversification. The level of diversification benefit does not exhibit a strong link with the size of the firms.

Market-to-Market correlations

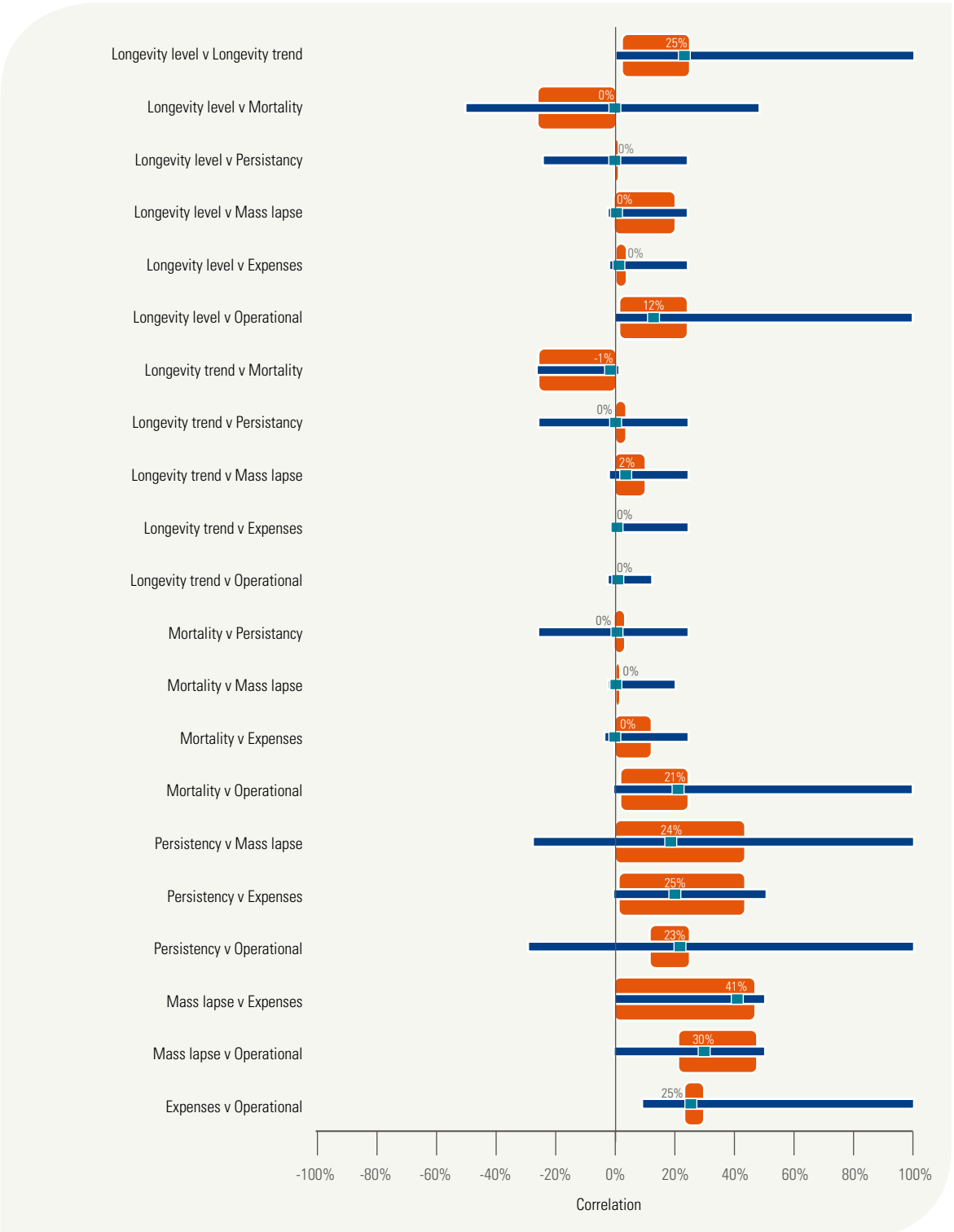
Graph 7.15.6a:
Market to Market correlations



For correlations involving the interest rate level (PC1), most firms have positively correlated this with other market stresses. However, some firms have it negatively correlated, this is normally due to these firms having the interest up stress as more onerous, which would be more prudent.

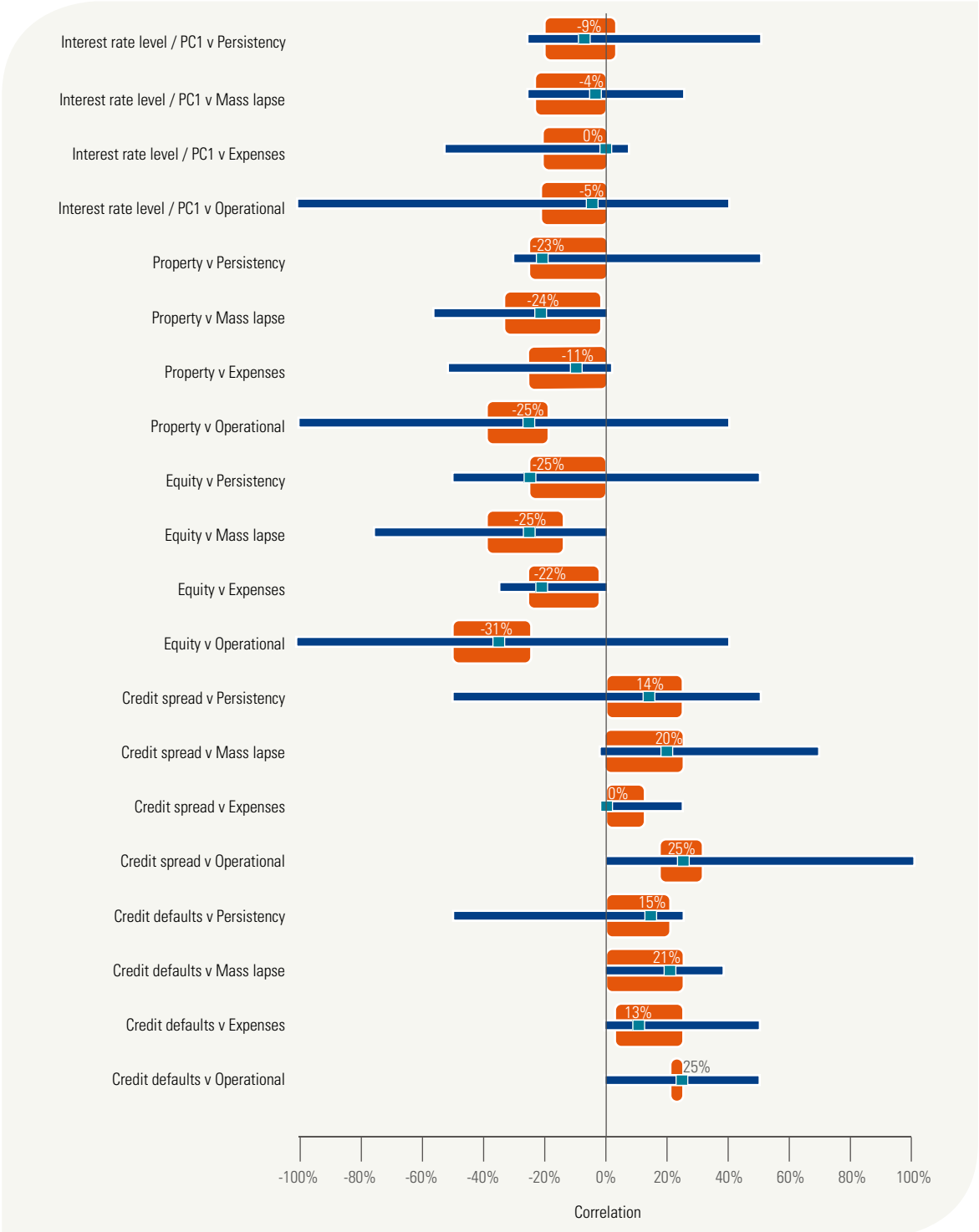
Non-market-to-Non-market correlations

Graph 7.15.6b:
Non-market to Non-market correlations



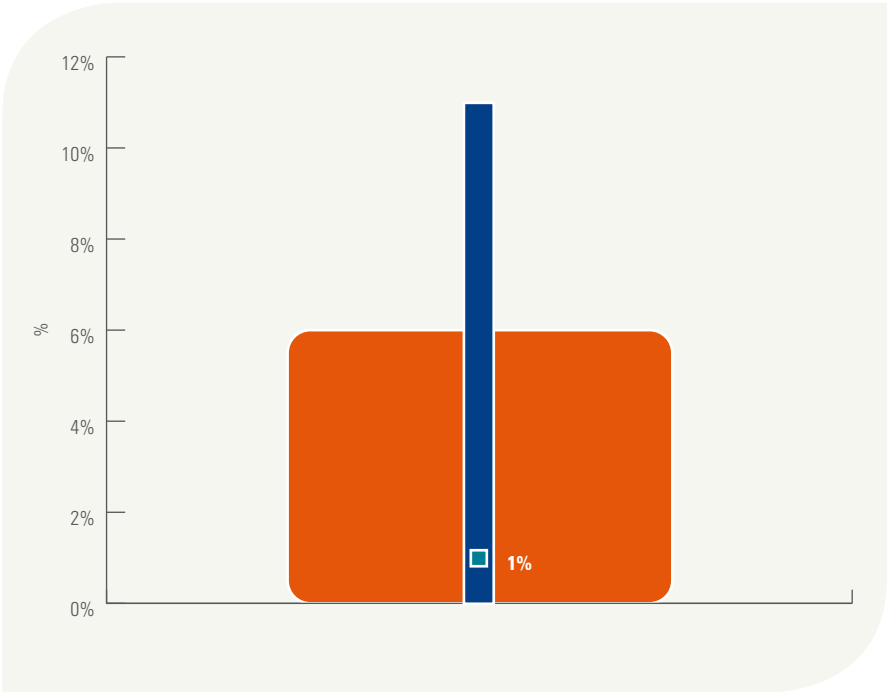
Market to Non-market correlations

Graph 7.15.6c:
Market to Non-market correlations



Magnitude of non-linearity adjustment

Graph 7.15.7:
What is the magnitude of the adjustment for non-linearity, expressed as a percentage of diversified capital requirements?



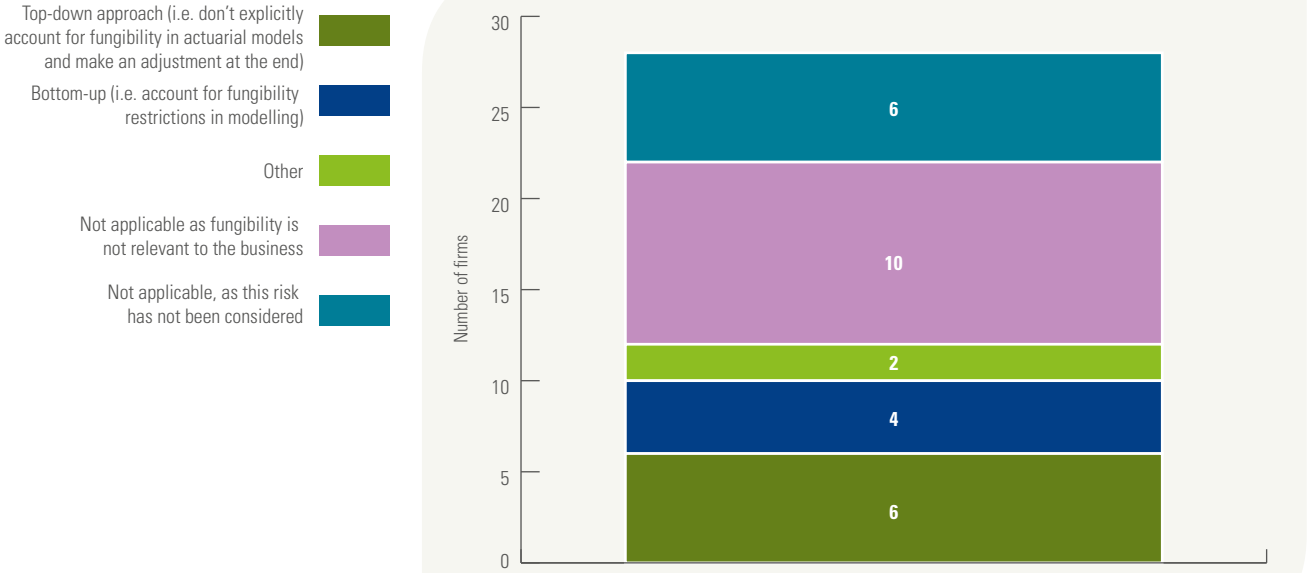
Six firms have a 0% non-linearity adjustment.

7.16 FUNGIBILITY

Fungibility is the extent to which capital can be transferred between different legal entities of the group.

Approach to accounting for capital fungibility

Graph 7.16.1:
Which best describes your approach to accounting for capital fungibility?



7.17 TAX

Deferred tax assets and liabilities are generally recognised on the Solvency II economic balance sheet and so directly affect own funds. Furthermore, tax has an important role to play in the calculation of the Solvency II SCR, as the recognition of deferred tax assets (or a reduced level of deferred tax liabilities) following a stress event is an important source of loss absorbency.

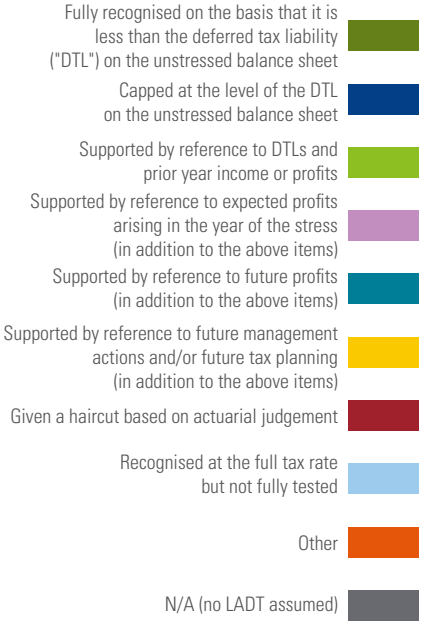
There has been considerable regulatory focus on tax during 2015. The PRA updated Supervisory Statement 2/14 – "Solvency II: recognition of deferred tax" in February and also published comments on tax as part of wider updates on SII on several occasions. EIOPA finalised Guidelines both on loss absorbency of tax (in February) and the valuation of deferred tax assets (in June). In addition, there have been a number of bilateral and multilateral discussions between firms, industry bodies and the PRA.

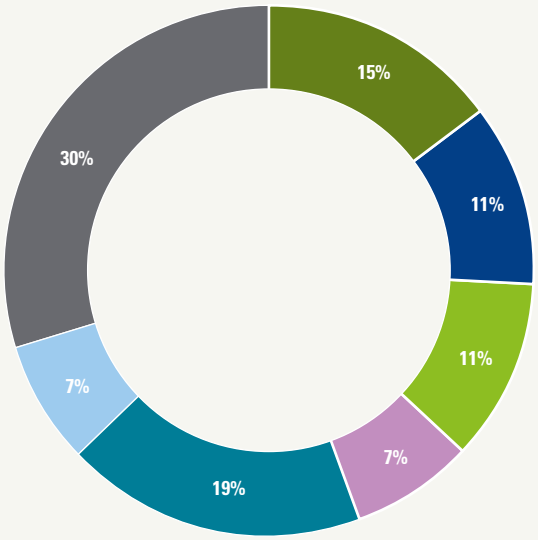
Overall, the results of this year's survey suggests greater conservatism is taking hold. In particular, the assumption that risk margins will run off, thus creating future profit to support deferred tax assets has been abandoned by a number of firms. It remains to be seen whether this is a permanent shift in opinion or a temporary one. The survey indicates that a number of firms were waiting for a conclusion to industry level or bilateral discussions with the PRA before settling their policy on this point. It will be interesting to see how these firms' positions (and those of respondents more generally) will move in future.

Areas of uncertainty and judgement remain. We believe there is scope for firms to further refine their tax methodologies (and enhance their capital position) as they explore assumptions as regards future profits in the context of their specific fact patterns in bilateral discussions with their supervisor.

The four questions in this section consider the calculation of the loss absorbency of deferred tax and the support of the deferred tax position on the post-stress balance sheet; how tax is dealt with by the internal model; and the final question concerns the risk margin.

Graph 7.17.1:
If, for a significant part of your business, a non-nil loss absorbency of tax ("LADT") is calculated, is that LADT:



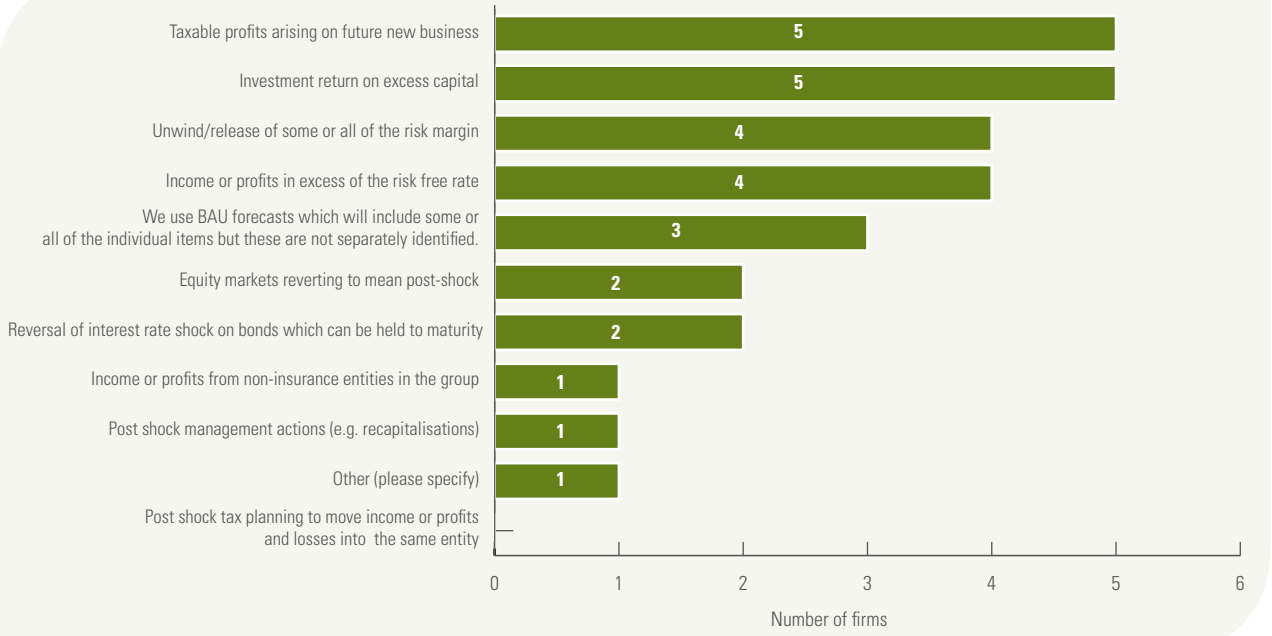


We asked firms about their level of loss absorbency of tax. Most firms recognise some loss absorbency of tax. However future taxable profits are only relied on to support the loss absorbency of tax in 19% of cases. Such calculations are judgemental and potentially complex. This may reflect some conservativism (at least for the 11% of cases where firms are capping the loss absorbency at the level of deferred tax liabilities, if not more generally). In other cases, future profits may simply not be necessary (including the 15% of cases where the loss absorbency of tax is less than the deferred tax liability).

It is notable that 30% of firms do not recognise any LADT. It is possible that this may be a conscious decision based around their specific fact patterns, however in some of these cases we would expect there may be an opportunity to reduce the capital requirement.

Overall, the broad pattern of practices was consistent with prior year surveys. It will be interesting to see if this pattern is maintained in future as firms interpret final Guidelines from regulators and have their tax methodologies subject to scrutiny from regulators.

Graph 7.17.2:
Which of the following sources of future income or profits does your tax methodology allow you to anticipate when valuing deferred tax assets on the stressed balance sheet (whether or not they have been relied upon to support results produced)

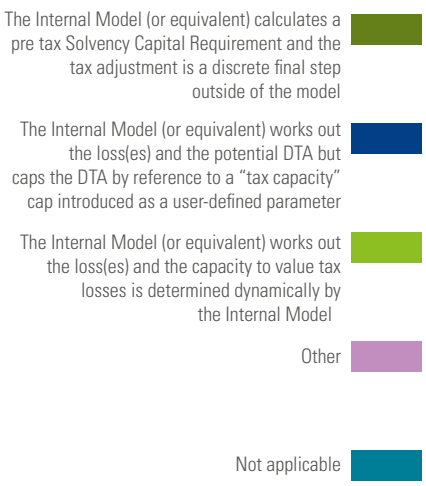


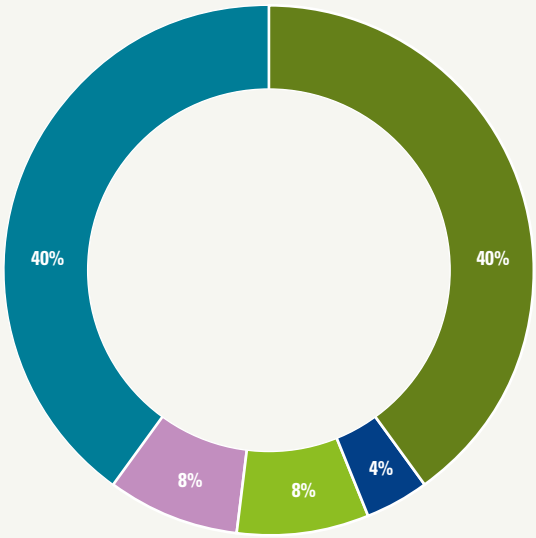
We asked firms to describe sources of future income or profits their methodology allows them to support DTA on the stressed balance sheet (whether or not those sources are relied on to support the results produced at present). Fourteen firms (ten proprietary companies and four mutuals) selected one or more responses. Five firms selected three or more responses (four proprietary and one mutual).

As was the case in prior years, the most common responses include future new business, investment return on excess capital and release of some or all of the risk margin. However the absolute number of responses has reduced. In the 2014 survey, 17 firms selected one or more response to a similar question. In that survey the top three responses attracted between nine and eleven responses in contrast to a maximum of seven in 2015. This may be evidence that firms are adopting more conservative positions following PRA scrutiny of assumed risk margin releases and the PRA's comments on the difficulty inherent in modelling real world investment returns.

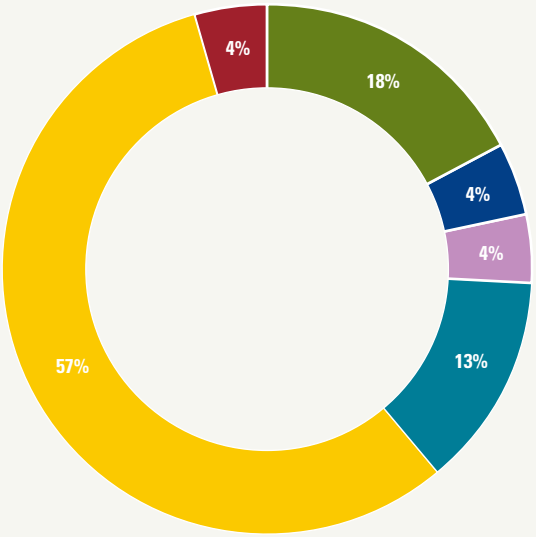
Nonetheless, six firms, almost all large propriety companies which are open to new business, still include future releases of Risk Margin as part of their methodology.

Graph 7.17.3:
In terms of calculating the LADT, how is the deferred tax asset arising from the shock loss determined?





Graph 7.17.4:
In supporting DTAs on the SII balance sheet and/or the LADT, to what extent does your methodology anticipate the the release of the Risk Margin as a source of future profits (whether or not this is necessary to support results at present)?



We asked firms about the use of release of Risk Margin to support Deferred Tax Assets. The great majority of respondents are not anticipating Risk Margin release in their methodology but six firms allow full or partial release.

There has been considerable movement in the last two years. The 2013 survey indicated that nine firms were assuming release in full, in the 2014 survey it was only two firms (but with a further eight assuming partial release). There is further movement between 2014 and 2015 with the number of firms assuming either full or partial release falling from ten to six firms.

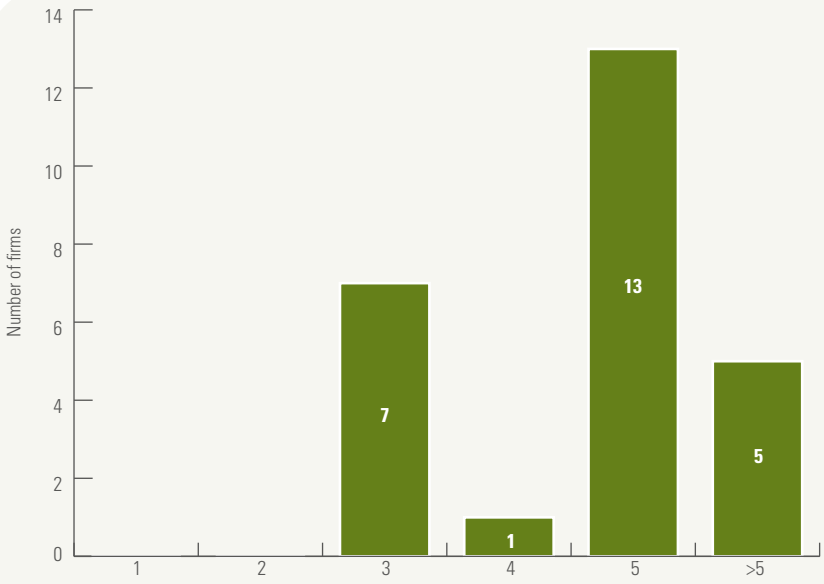
This is likely to be, at least partly, due to the issue of SS 2/14 which was seen as strengthening the PRA's expectation that the release of the risk margin could not be anticipated as a source of future profits.

The survey indicates that four firms (17% of respondents) were waiting for a conclusion to industry level or bilateral discussions with the PRA before settling their policy on this point. It will be interesting to see how these firms' positions (and those of respondents more generally) will move in future.

7.18 ORSA PROJECTION

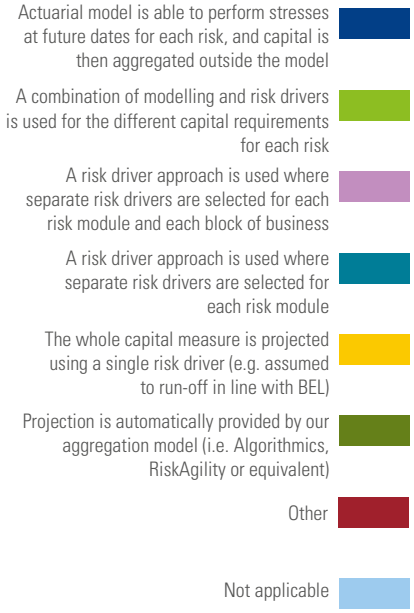
Long term business planning is by no means a new science, but under Solvency II the ORSA is a key part of the integration of business planning with Solvency Capital monitoring. We asked firms about their intentions for capital management and business planning.

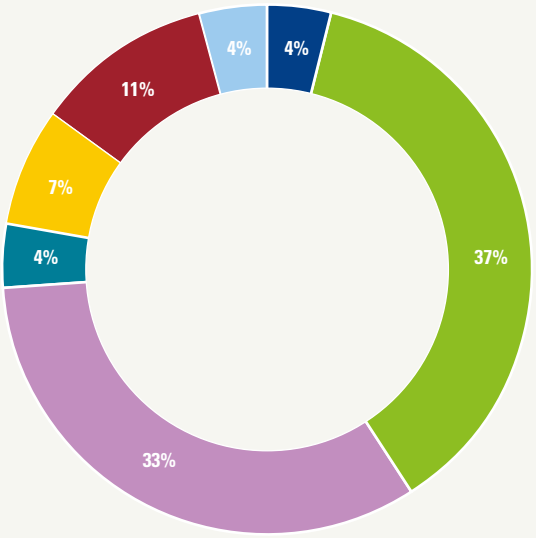
Graph 7.18.1:
How many years do you project your ORSA balance sheet?



We asked firms what projection period they used for business planning. Most firms used a planning period of either 3 or 5 years. No respondents use a planning period of less than 3 years.

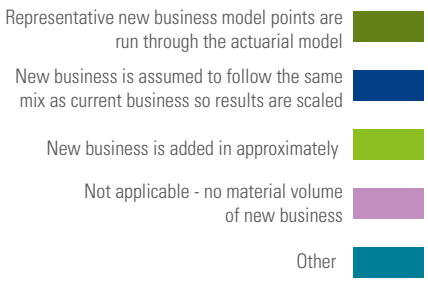
Graph 7.18.2:
How does your company project its future capital requirement?

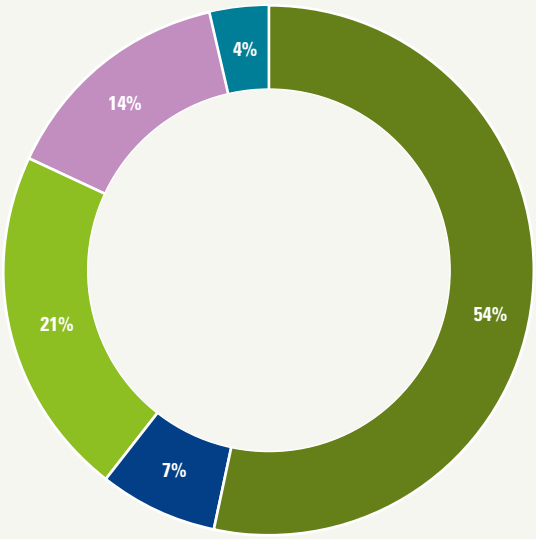




We asked firms about their approach to projecting capital. Most firms are using a risk driver approach with varying degrees of sophistication and complexity.

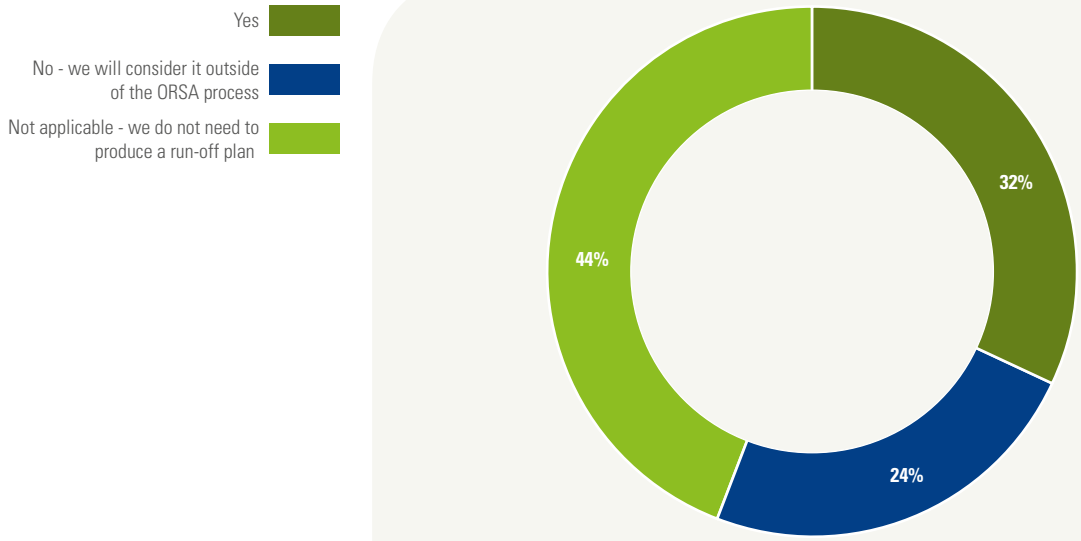
Graph 7.18.3:
How does your projection method build in new business?





We asked firms how they project for new business. The majority of firms are using representative new business model points. Around a quarter of firms are using an approximate approach.

Graph 7.18.4:
Will you be considering your with-profits run-off plan as part of your ORSA going forward?

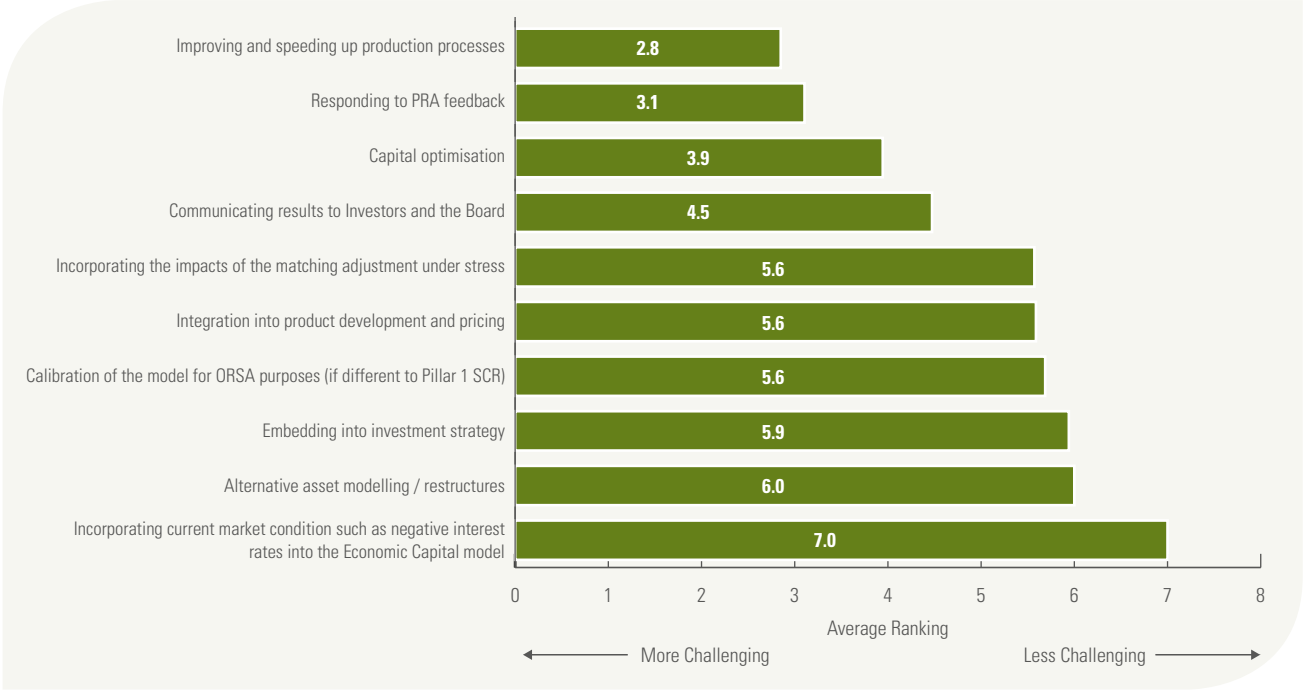


We asked firms about the extent to which they would consider run-off of with-profits within the ORSA. For the respondents where the question was applicable there was a broadly even split between consideration of the with-profits run-off plan within or outside of the ORSA.

7.19 OTHER CAPITAL ISSUES

Aside from the challenges presented to firms in developing their approach for Solvency II, there are a number of other challenges on the horizon which firms will need to consider in the development of their Capital monitoring and assessment programmes.

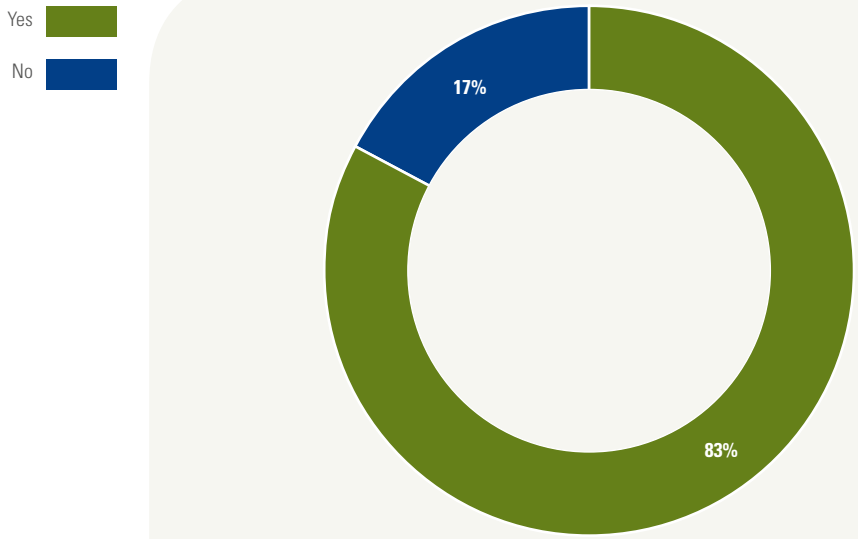
Graph 7.19.1:
What do you think are the top 5 challenges over the next twelve to eighteen months for your Internal Model / Economic Capital model?



We asked firms about the challenges they are facing with respect to their Internal Model / Economic Capital model over the near term. For ten challenges which we specified in our survey we asked firms firstly whether this was a challenge for them which they intended to address over the next twelve to eighteen months. Secondly, of the applicable near term challenges, we asked firms to supply a ranking and to order the challenges by level of difficulty.

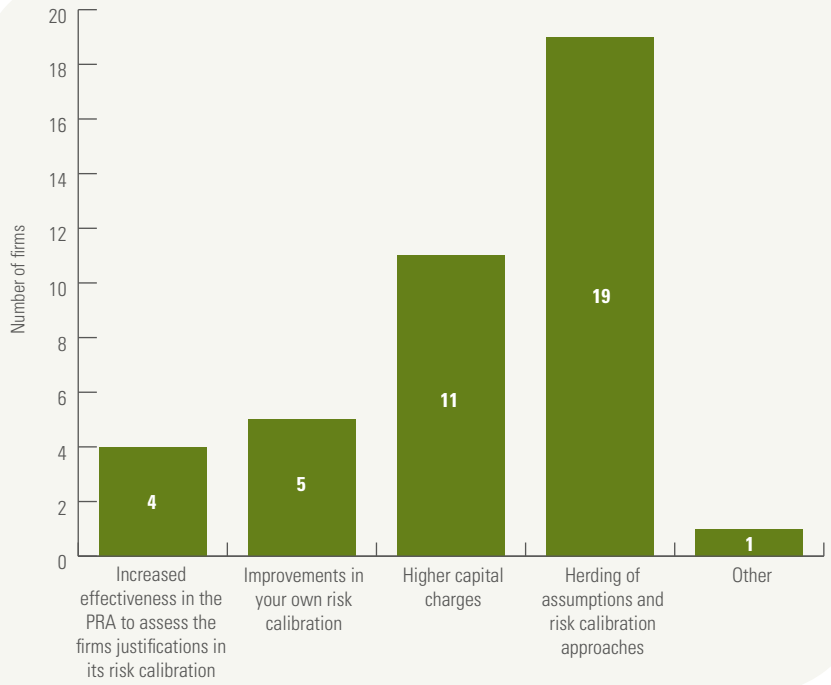
It should be noted that the smaller bars correspond to greater perceived difficulty and so the greatest challenge was improving and speeding up production processes.

Graph 7.19.2:
Do you believe that the PRA should publish its quantitative indictor benchmarks (as outlined in its letter on the 9th March 2015)?



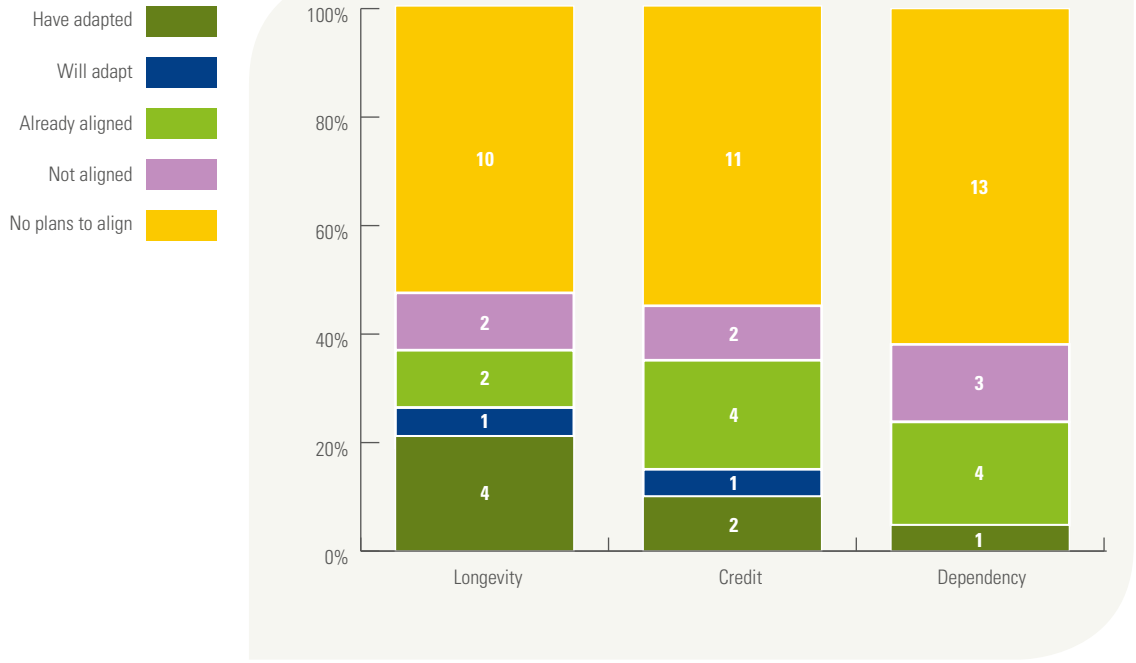
We asked firms whether the quantitative indicators produced by the PRA should be published. Most firms preferred publication of the quantitative indicators.

Graph 7.19.3:
What do you think will be the effect of the PRA's quantitative indictors?



We asked firms for their view on the likely impact of the quantitative indicators. The most common response was that the quantitative indicators will result in the herding of assumptions and risk calibration approaches. Some firms viewed quantitative indicators as likely to lead to higher capital charges, whilst a few firms foresaw improvements in their calibration approaches as a result and a benefit in terms of increased effectiveness in PRA assessments.

Graph 7.19.4:
Have you adapted or will you adapt your current risk calibration to align more closely with the methodology used to derive the quantitative indictors described by the PRA in its letter dated the 9th March?



The PRA set out its approach to Quantitative Indicators in its 9th March 2015 letter, specifically for Longevity Risk, Credit Risk and Aggregation. Most firms have no plans to align their approaches to risk calibration to the PRA's quantitative indicators.

8 Reporting

One of the significant changes affecting all firms under Solvency II is the level of reporting required, and the overall approach to reporting as far more detail than ever before will be released into the public domain.

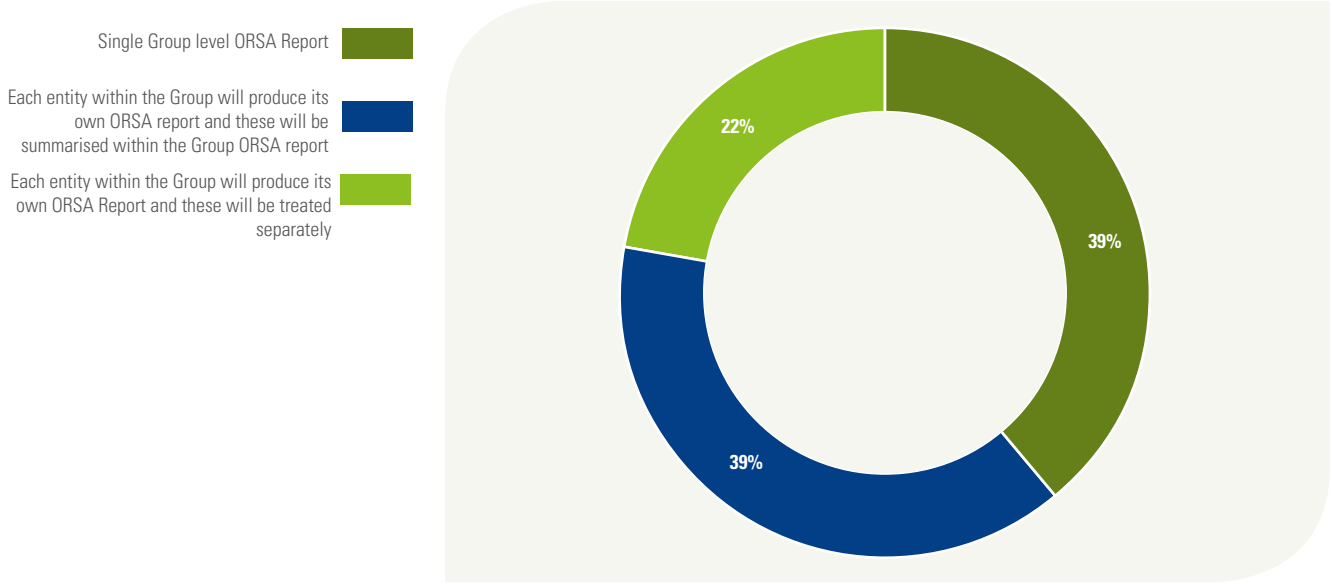
Most UK firms have been producing ICA submissions to assess their realistic view of risk capital for a number of years, but the shift under Solvency II to change this from a private submission to the regulator into a position where some detail is released into the public domain has forced firms to closely scrutinise the approach they take to reporting as they consider their competitive position. This internal scrutiny is further emphasised by the need to demonstrate that the results of Solvency II models are embedded into the running of the business and the decisions made on a day-to-day basis.

Additionally, there are new requirements around the format of reporting and perhaps more importantly the timescales for reporting cycles to be completed. These requirements and a more demanding schedule are forcing firms to review their overall suite of reporting as part of their Solvency II implementation programme.

8.1 ORSA

The Own Risk and Solvency Assessment (ORSA) will form a key part of a firm's internal governance under Solvency II, however there are a number of possibilities for the approach firms might use to implement the Solvency II ORSA requirements.

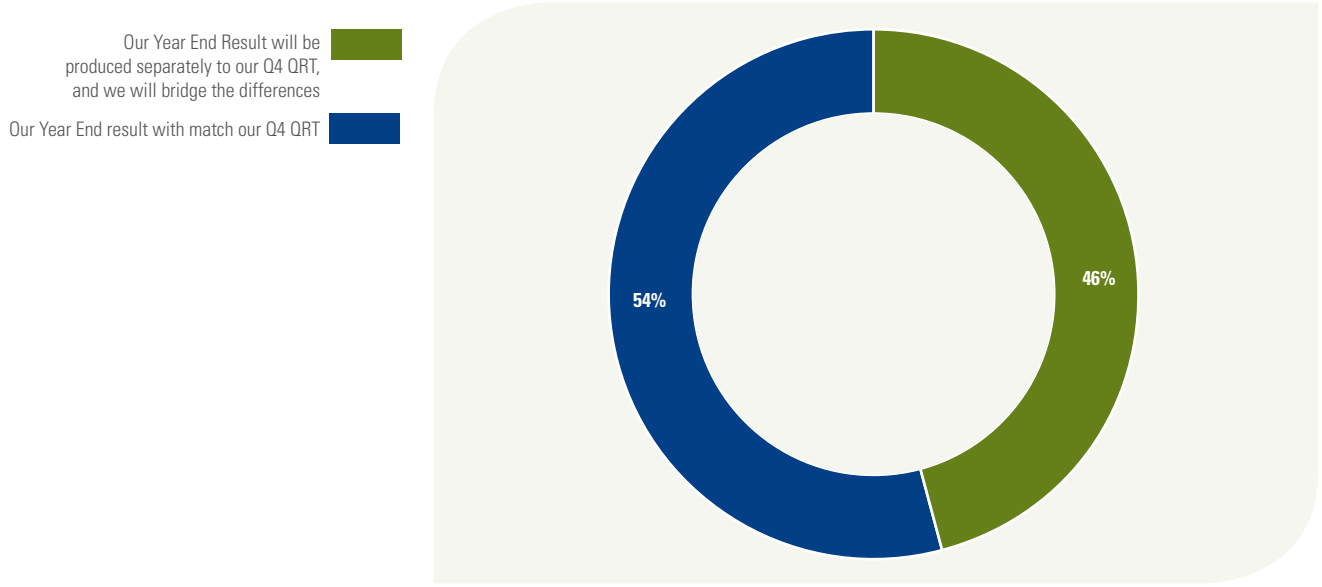
Graph 8.1.1:
Do you intend to produce a single ORSA report for your Group, or individual ORSA reports for each entity within the Group?



8.2 QRTs

Quantitative Reporting Templates (QRT) are required for private submission to the PRA on a quarterly and annual basis, with a subset required for public submission as part of the Solvency and Financial Condition Report (SFCR). We asked firms about the current status of their QRT reporting and where they expected to be at Solvency II go-live on 1st January 2016.

Graph 8.2.1:
What approach are you intending to take with your Q4 Quarterly QRT and Year End solvency reporting?

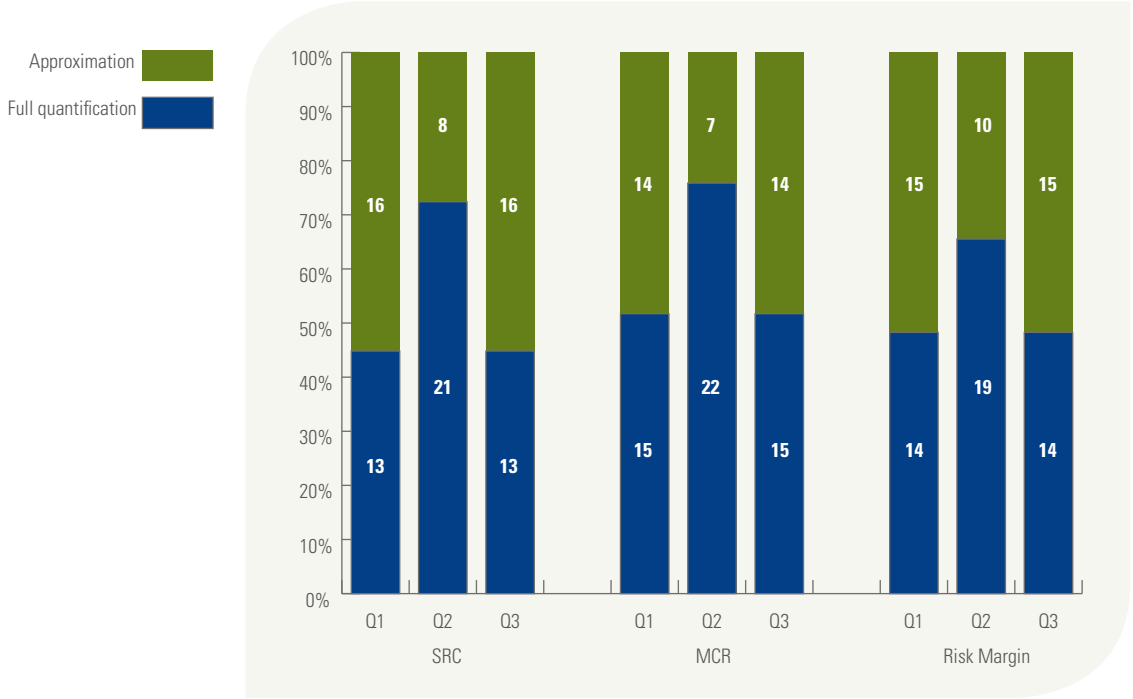


The permitted timescales for delivery of QRTs are significantly shorter than those for delivery of the full annual submission, and this is creating an issue for firms around whether they should produce their quarter four submission and their annual submission separately, and then bridge any difference in results.

54% of firms have indicated that their Q4 submission will align with their Year End result, suggesting that they intend to complete all of their Year End modelling and calculations within the QRT timescales, while 46% intend to produce the reports separately and explain any differences though a bridging analysis.

Although not a conclusive pattern, large firms demonstrated a much stronger tendency to align their Q4 submission with their Year End result than small or medium firms, with 63% of large firms indicating that they would align, compared with 44% of small or medium firms. This perhaps reflects the larger resources available to large firms.

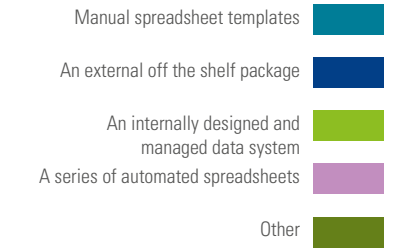
Graph 8.2.2:
What approach will you use for calculating and populating QRTs at Q1, Q2 and Q3?

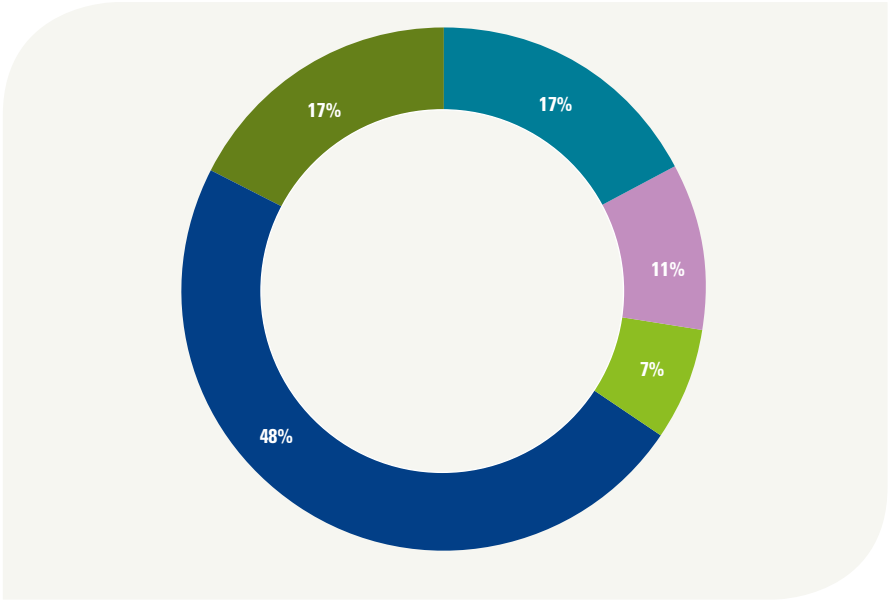


For the interim QRTs, firms are required to provide an updated position to their Year End submissions. This can be done through a full quantification of their position, or using an approximate approach, such as adjusting the Year End position for known movements over the period without full re-calculation.

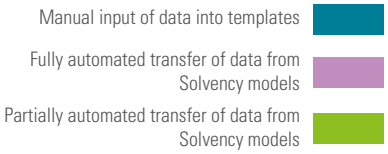
The pattern emerging is that firms will tend to produce a full quantification for Q2, which is perhaps not surprising given the current requirements for interim mid-year submissions and the need to avoid diminishing accuracy through the quarters, but that less than half of the respondents intend to provide a full quantification at Q1 and Q3.

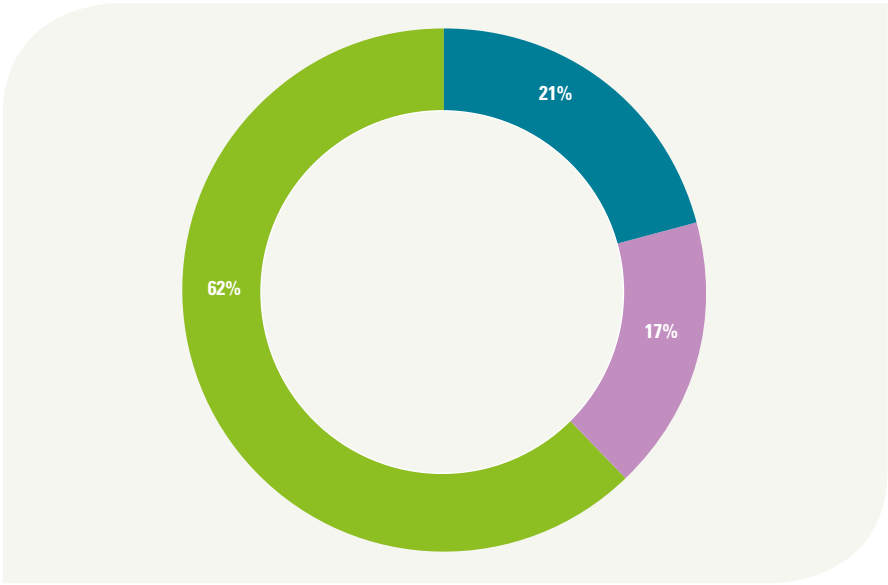
Graph 8.2.3:
What systems will you have in place at 1st January 2016 to produce your QRTs?





Graph 8.2.4:
What process will you have in place at 1st January 2016 to populate your QRTs?

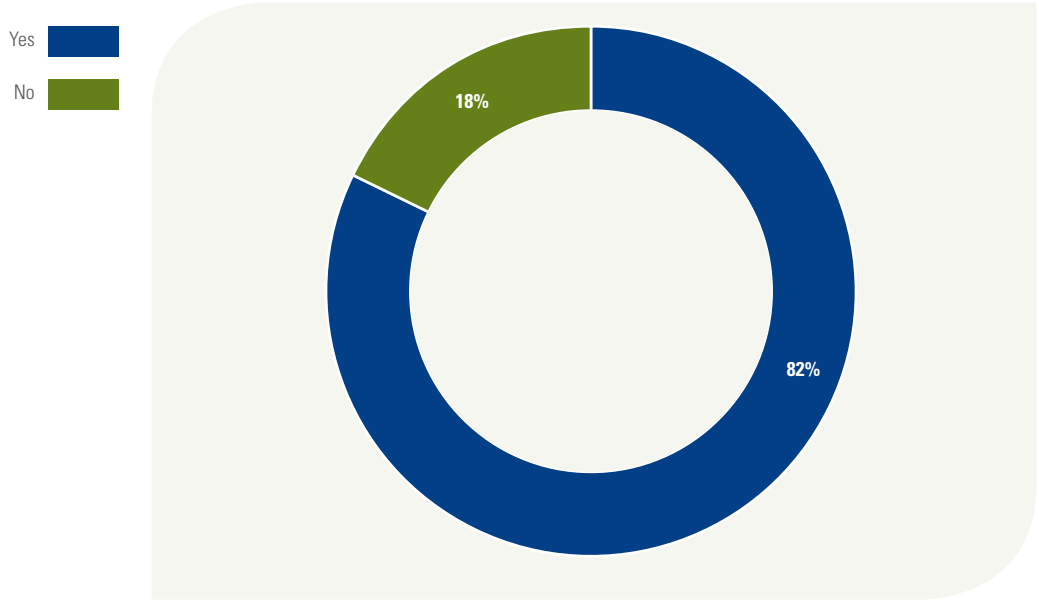




Firms have been required to make significant developments to their systems and processes as part of their Solvency II preparations, and many firms will be using either "off-the-shelf" packages or spreadsheet templates to transfer their data, using either manual or partially automated data transfer at the Solvency II go-live date. Those respondents using "other" approaches to QRT population typically indicated their approach incorporated a combination of the options presented.

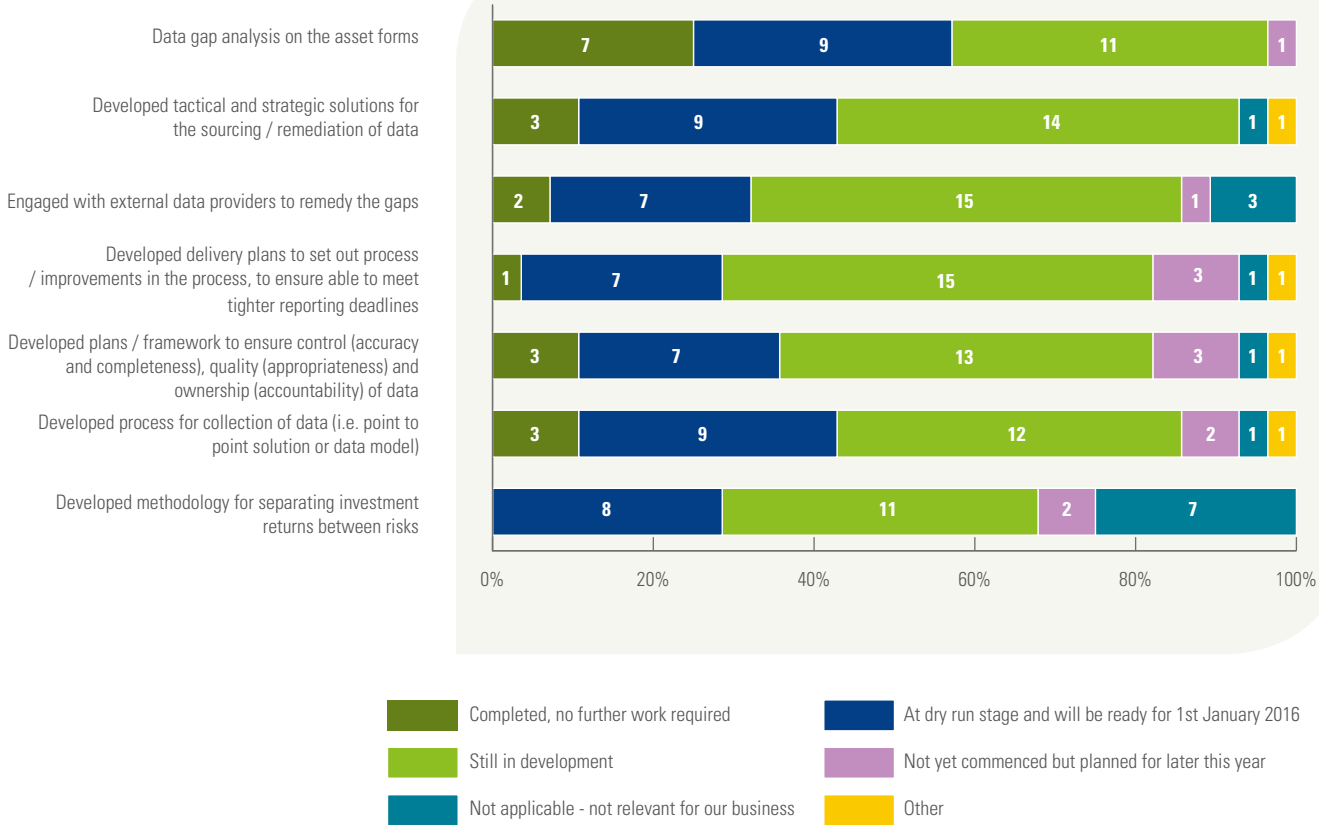
Only a small number of firms have a fully integrated data transfer system in place, however this may be a consequence of conflicting priorities in Solvency II preparation, and we would expect this number to increase over the next 12 months. There was no clear link between the level of data transfer development and firm size.

Graph 8.2.5:
Have you performed a dry run to date of your QRT reporting?



Regardless of the level of integration in the data transfer systems, most firms have performed dry-run testing of their approach ahead of the go-live date; which is as expected given the quantity of information required to populate the QRT's in a short timescale.

Graph 8.2.6:
What is the current status of your Solvency II Pillar 3 Reporting for Assets, with respect to the following items:

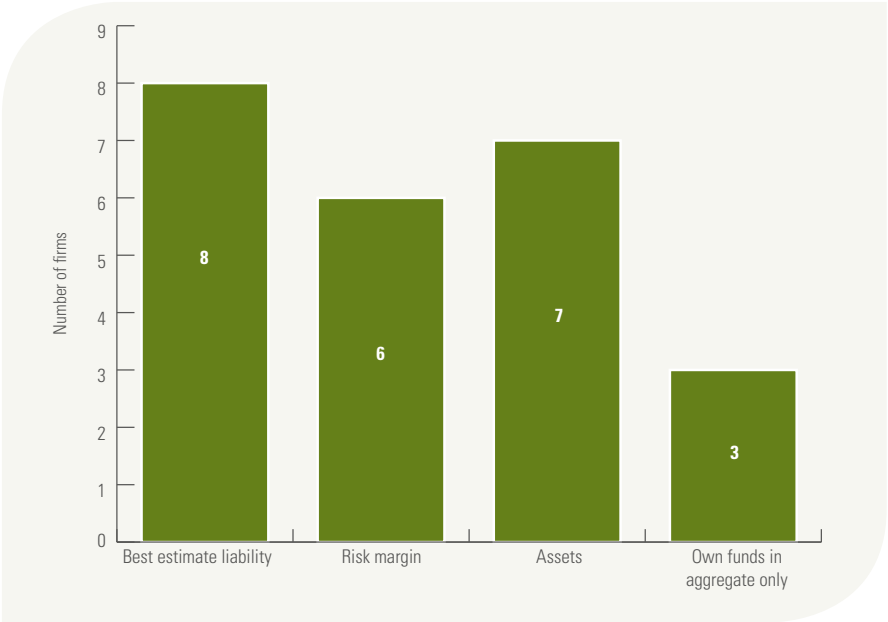


The level of preparation for population of asset templates appears to be lagging somewhat behind the equivalent reporting of liabilities. Very few respondents described their asset reporting approach as being complete with no further work required, with the majority being either in development or at testing stage.

8.3 PROFIT & LOSS ATTRIBUTION

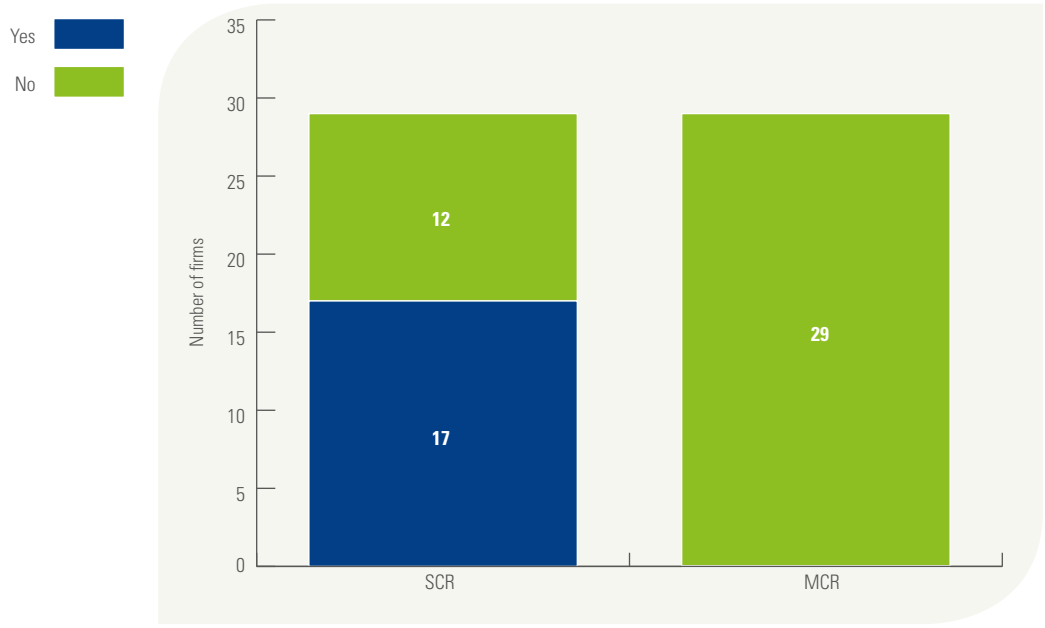
Solvency II requires an annual profit and loss attribution to be submitted as part of the suite of reporting (partial) internal model firms are required to produce. We asked firms about their approach to P&L attribution.

Graph 8.3.1:
If you are a "(Partial) Internal Model" firm, which items will your Profit and Loss Attribution cover?



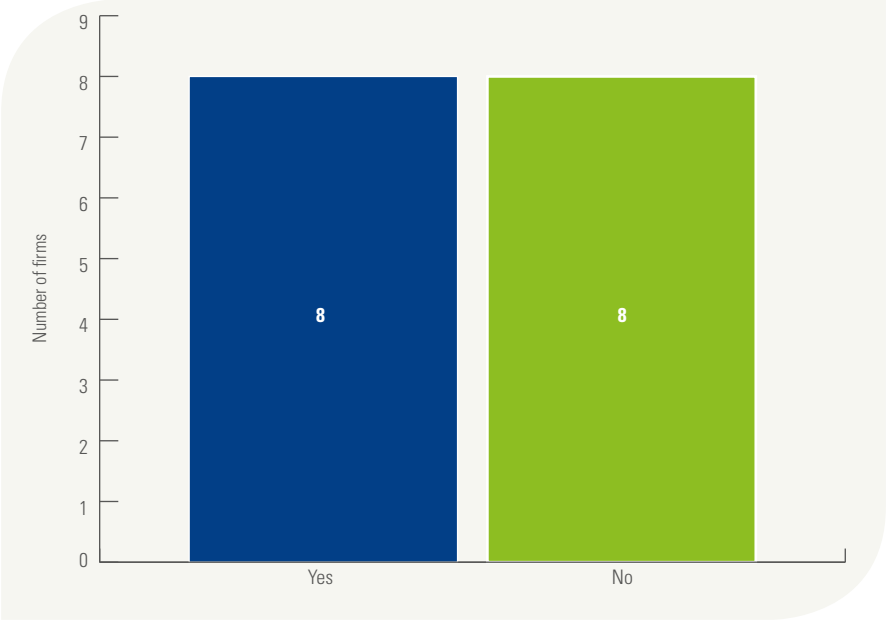
Of the (partial) internal model firms, all intended to produce P&L attribution for their best estimate liabilities. Most also intended to produce the analysis for their risk margin and Assets. Only a small proportion indicated they would produce the analysis for Own Funds in aggregate only.

Graph 8.3.2:
Do you perform an Analysis of Change for the following?



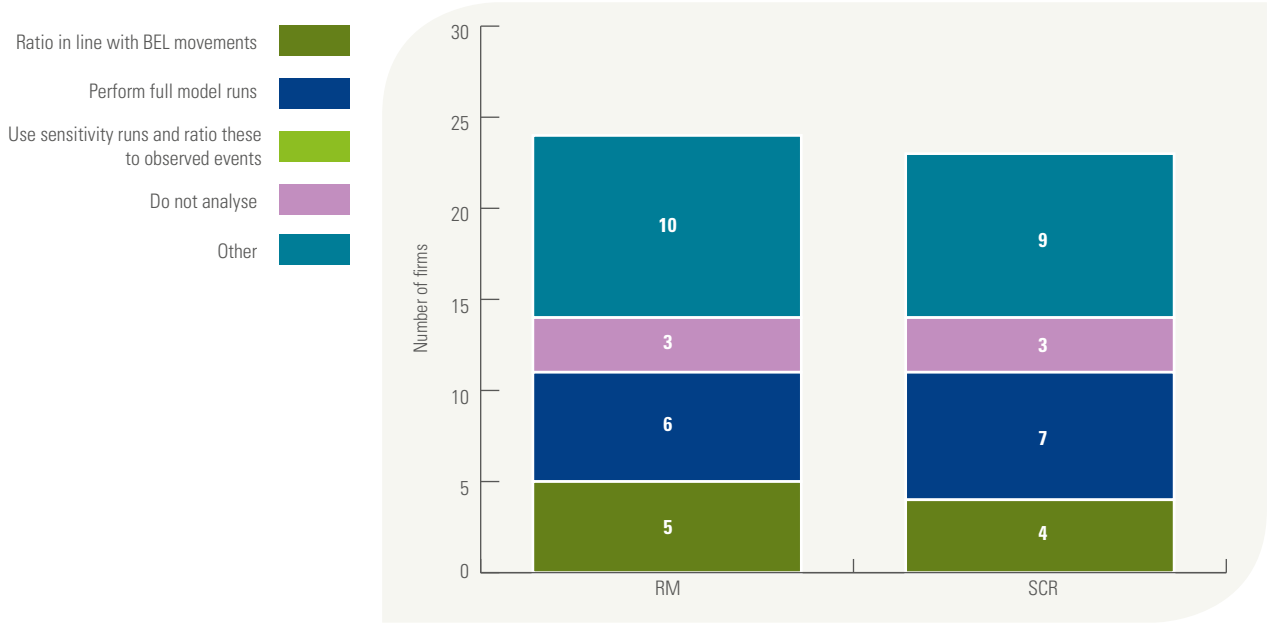
Additionally, over half of the respondents perform analysis of change for their SCR, while none of the respondents intend to do this for their MCR.

Graph 8.3.3:
If you are a "Standard Formula" firm, do you perform an Analysis of Change for Own funds in aggregate only – i.e. not split between assets and liabilities etc?



Of the firms using standard formula, exactly half intended to perform analysis of change in aggregate only.

Graph 8.3.4:
If you perform an analysis of change on the RM or SCR what approach do you take?



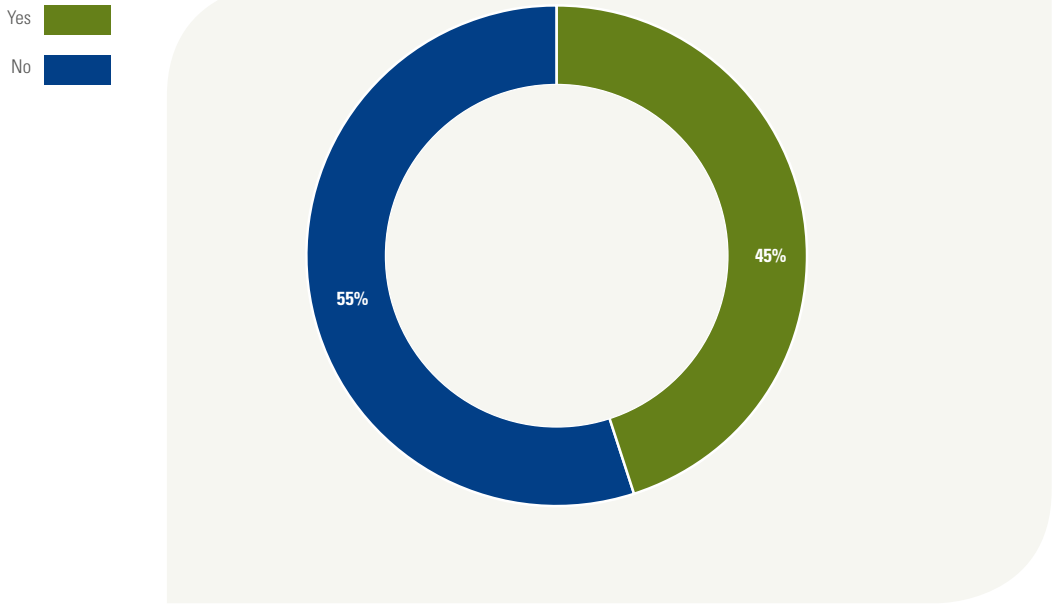
Of the firms performing analysis of change on their SCR and RM, firms intend to use a variety of approaches to produce the analysis. The distribution for RM and SCR were very similar, indicating a consistent attitude and approach to both.

Compared to last year a greater proportion of firms ratio their RM and SCR in line with BEL. More companies are performing an analysis of change in the SCR compared to last year.

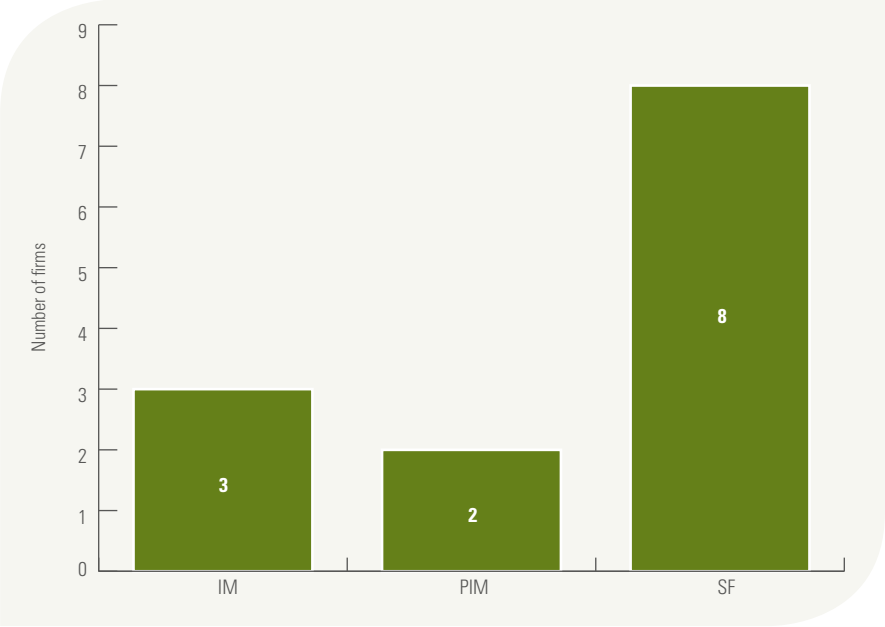
8.4 SFCR

The Solvency and Financial Condition Report (SFCR) is a key piece of annual reporting under Solvency II, and as it is a public reporting requirement we might expect firms to treat the development of their SFCR as a high priority due to the commercial sensitivity of its content. We asked firms about their approach to, and development of, SFCR reporting.

Graph 8.4.1a:
Have you performed a dry run of your SFCR reporting?



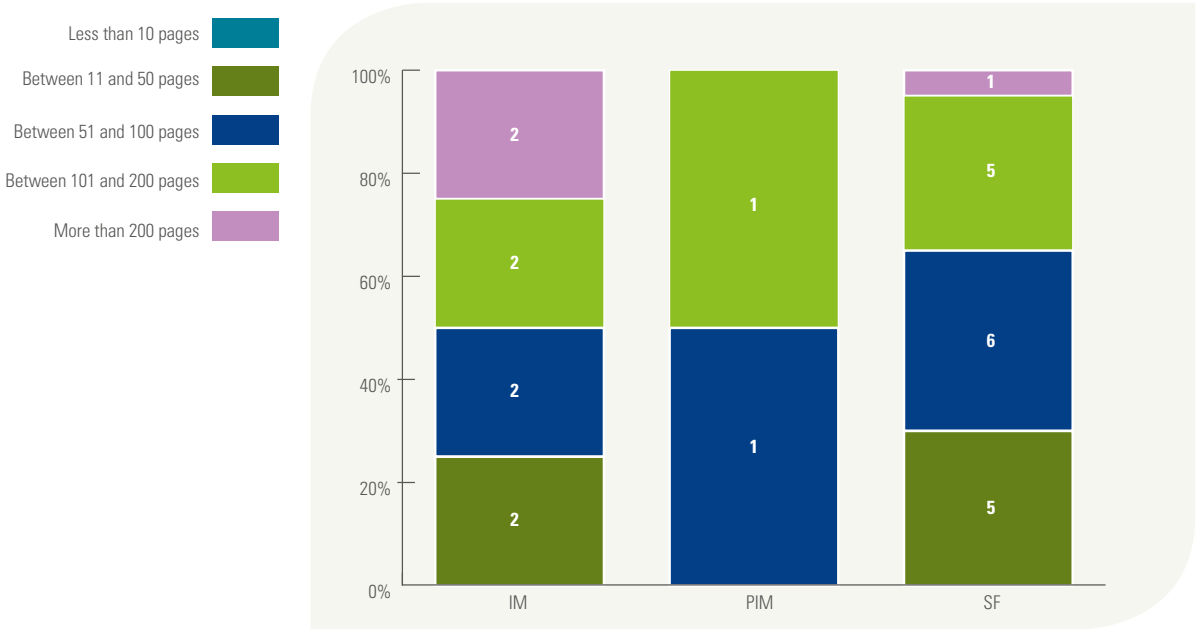
Graph 8.4.1b:
Have you performed a dry run of your SFCR reporting?



Perhaps surprisingly, only 43% of firms have performed a dry run of their SFCR at the time of writing. For Internal Model firms this proportion was only 25%, perhaps reflecting the conflicting priorities associated with preparation for Solvency II, such as IMAP. However, the two PIM firms have both performed dry run testing.

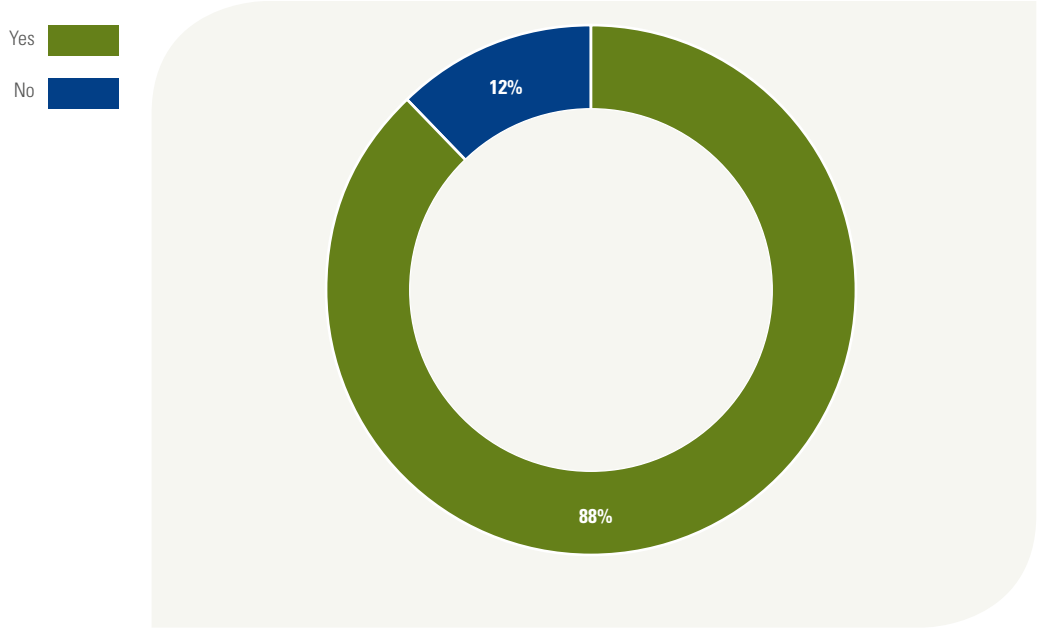
We might expect that a larger ratio of firms will have dry-run tested their SFCR reporting at the time of publication.

Graph 8.4.2:
How long do you expect your SFCR to be?



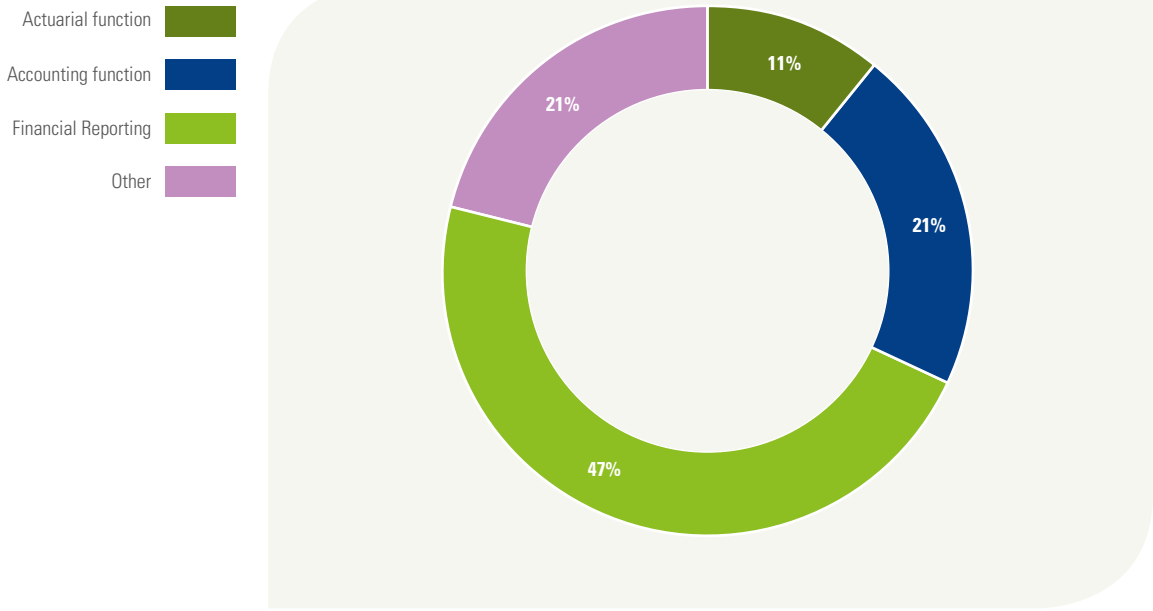
We asked firms to consider the expected length of their SFCR. Although the majority of firms expected to produce a report in excess of 50 pages, the variety of responses suggests there is no clear view across the industry about the final shape of a "standard" SFCR. Three firms expected to produce an SFCR in excess of 200 pages for this key piece of public disclosure.

Graph 8.4.3:
Do you intend your SFCR to align with your published Reports and Accounts?



The vast majority of firms expected the SFCR to align with their Reports and Accounts, with only 3 respondents indicating their SFCR and Reports and Accounts would not be aligned.

Graph 8.4.4:
Where within your company is the SFCR owned?

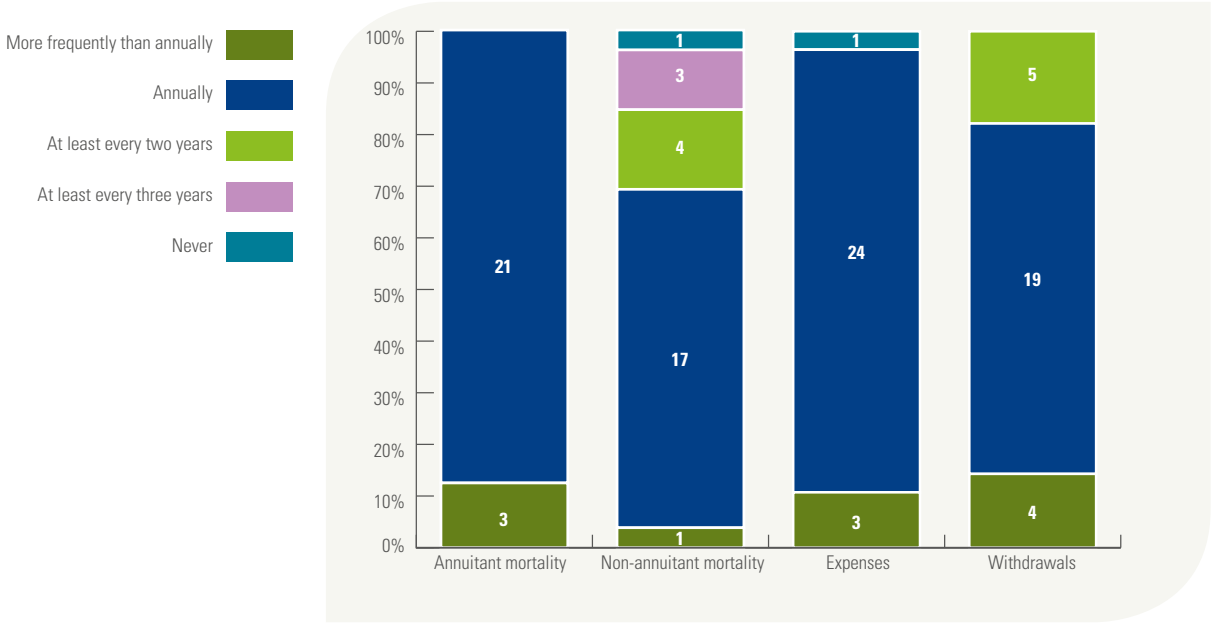


There is significant variation among respondents on the ownership of the SFCR within their organisation. 47% of respondents considered that ownership would be within the Financial Reporting function, with a further 32% suggesting ownership would lie either in the Actuarial or Accounting functions. 21% expected ownership to lie elsewhere within the firm, with the majority of these indicating that the SFCR would reside within a dedicated risk function.

8.5 MONITORING

Monitoring experience has always played an important role in Life Insurance, from understanding profit emergence and business value, to setting assumptions. The importance of experience monitoring continues under Solvency II as Best Estimate assumptions are required for calculation of Technical Provisions, and the assumptions used by insurers are presented in the public domain. We asked firms how frequently they perform different monitoring tasks.

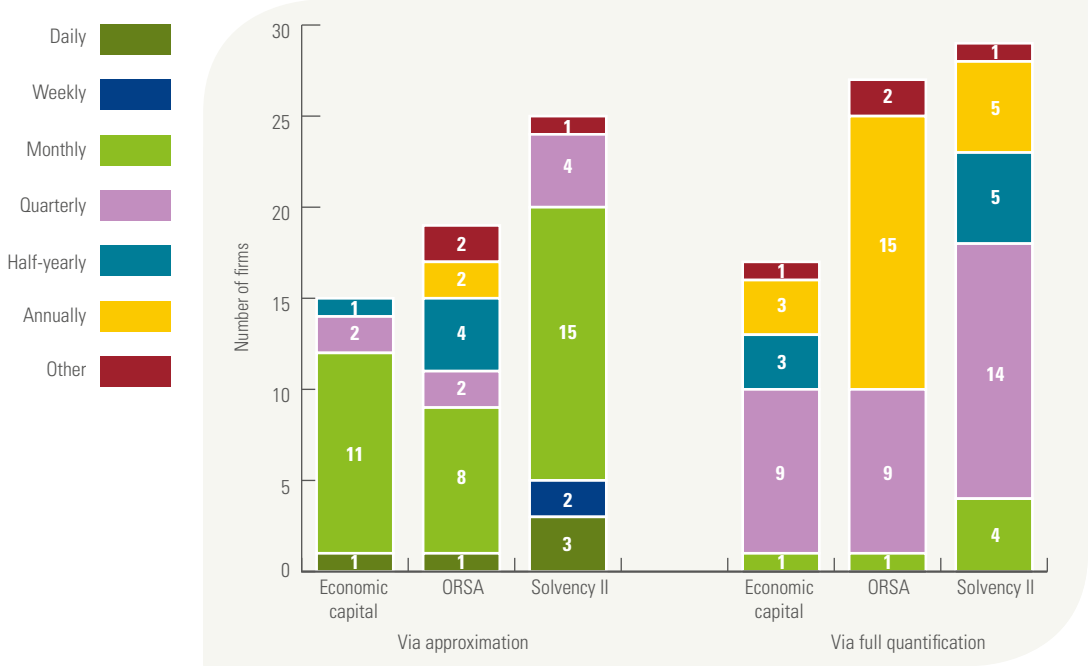
Graph 8.5.1:
How often are the following experience analyses currently performed:



As might be expected, and consistently with previous surveys, the majority of firms perform their experience analyses on an annual basis. Where analysis is performed more frequently than annually, this is typically for analysis of expenses and withdrawals which are typically more volatile than mortality. This feature is also consistent with previous years.

There is an increase in frequency of monitoring of annuitant mortality, perhaps reflecting recent legislative changes in annuity regulation and gender legislation.

Graph 8.5.2:
How frequently are you planning to monitor your solvency capital measure?

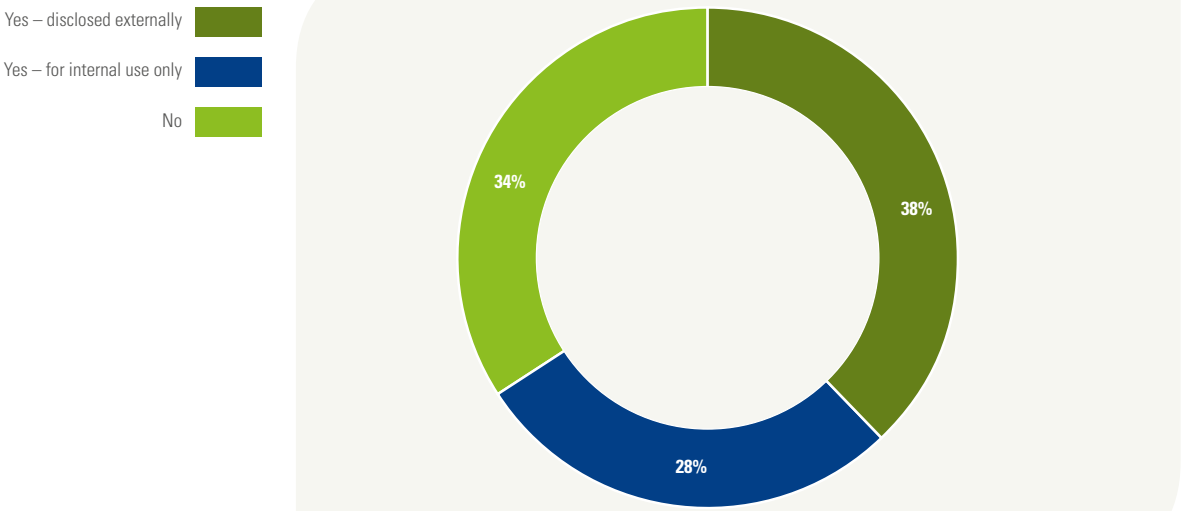


The frequency of monitoring of solvency capital measures via full quantification has remained similar to last year for Economic Capital and Solvency II measures, but ORSA monitoring has increased in frequency with a third of firms now monitoring more frequently than annually, compared with less than half that proportion last year.

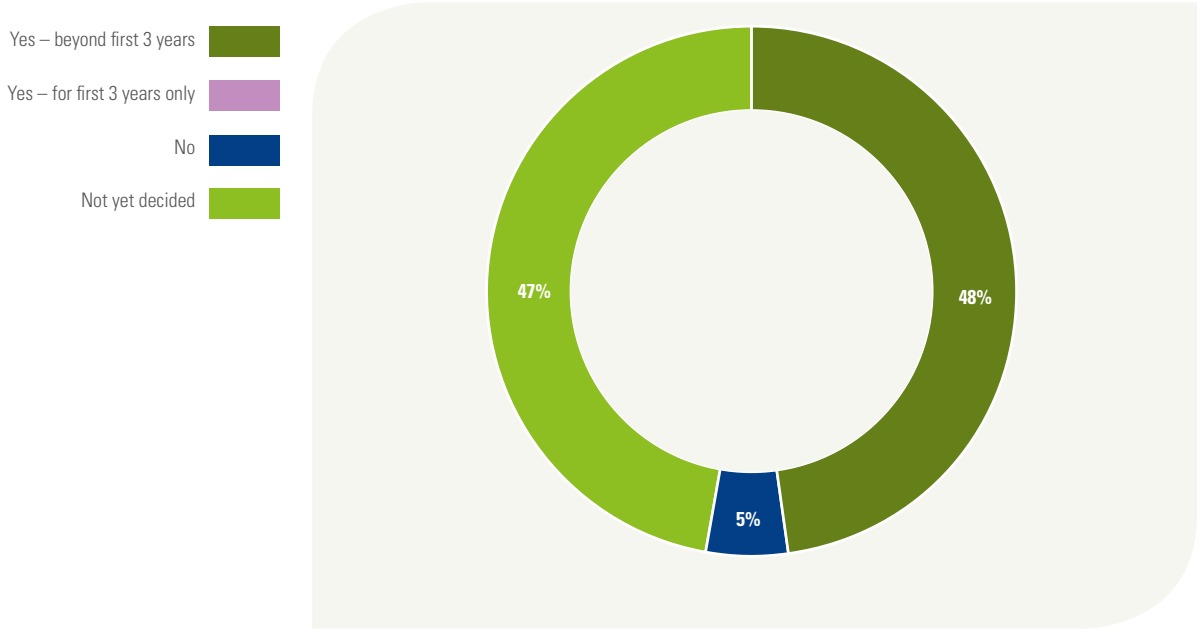
8.6 OTHER REPORTING

The introduction and development of Solvency II reporting has been a resource intensive process for the industry, and this, coupled with the extensive reporting requirements under Solvency II, has led firms to carefully consider the value added by each piece of reporting they produce. We asked firms to consider their approach to other reporting outside of the Solvency II framework.

Graph 8.6.1:
Do you currently compute an embedded value (EV)?

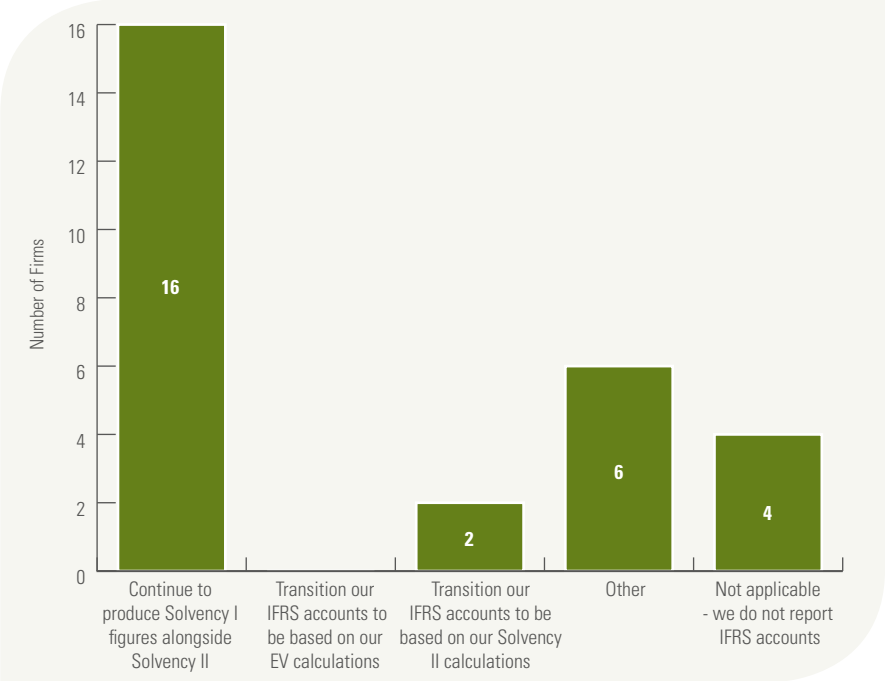


Graph 8.6.2:
Do you expect to compute an embedded value upon implementation of Solvency II?



19 of the 29 respondents indicated that they currently produce an embedded value calculation, and of those 19, only nine confirmed that they would continue to produce their embedded value upon implementation of Solvency II, with one firm confirming that they would no longer do so. This is a reduction from last year where 5 firms said that they would not produce an EV after Solvency II. The remaining nine firms were undecided on whether they would continue reporting embedded value or not.

Graph 8.6.3:
IFRS accounts are currently based on Solvency I figures. On what basis do you intend to produce your IFRS accounts in the period from SII going live and the implementation of IFRS 4 phase 2?



Alongside Solvency II, another important reporting output for firms is the IFRS accounts. Under the current IFRS regime, the accounts are usually based on current Solvency I figures. Over half of the respondents indicated that they would continue to maintain their Solvency I calculations alongside their Solvency II reporting in order to continue to report their IFRS accounts, with only two firms indicating that they would transition their IFRS accounts to be based on Solvency II.

9 Acknowledgements

Many people dedicated their time to making this survey a success and we would like to take this opportunity to thank each of them. We had 29 different respondents and many more actuaries gave up their time for surveys to be completed. We hope that the results will be valuable to everyone who participated.

We appreciate the time and care that is put into your responses, the feedback you provided to us and your willingness to discuss your answers with us. A list of the respondents participating in this year's survey can be found in Section 10.

CORE TEAM

John Jenkins
Partner

Jane Parker
Survey Lead

Thomas Murphy
Survey Manager

Chris Pountney
Survey Manager

Jean Le Roux
Executive Advisor

WITH ADDITIONAL INPUT FROM

David Honour
Director

Nick Ford
Principal Advisor

Gordon Gray
Principal Advisor

James Latto
Principal Advisor

Joshua Waters
Executive Advisor

Rowena Scott
Actuarial Analyst

10 List of participants

PARTICIPANTS

AEGON UK

AIG Life UK

AXA Wealth

Chesnara and Countrywide Assured

Equitable Life Assurance Society

Guardian Assurance

Hannover Re UK Life Branch

Hodge Life Assurance Company

Legal and General Assurance Society

Liverpool Victoria Friendly Society

Lloyds Banking Group

NFU Mutual Insurance Society Ltd.

Old Mutual Wealth Life Assurance Limited

OneFamily

Partnership Assurance

Pension Insurance Corporation

We would like to extend a very special thank you to all those who participated in the survey. We value your contribution and hope that you find the report useful and interesting.

Phoenix Group

Police Mutual

Prudential Assurance Company

RGA International Reinsurance Company

Reliance Mutual Insurance Society

Royal London

Scottish Friendly

St. James's Place Wealth Management

Standard Life Assurance Limited

Sun Life Assurance Company of Canada (UK) Limited

Unum

Wesleyan Assurance Society

Zurich Assurance Limited (UK)

CONTACT US

If you would like more information on any of the results set out in this report including electronic copies of the graphs and results set out within, or if you would like more information or assistance with regard to industry and technical actuarial practices, please contact:

Christopher Pountney
Executive Advisor
Tel: 0161 246 4154
christopher.pountney@kpmg.co.uk

Thomas Murphy
Executive Advisor
Tel: 020 7694 4654
thomas.murphy@kpmg.co.uk

Listed below for your information are the Partners and Directors of the KPMG UK Life Actuarial practice:

Ferdia Byrne
Partner
Tel: 020 7694 2984
ferdia.byrne@kpmg.co.uk

Simon Perry
Partner
Tel: 0117 905 4080
simon.perry@kpmg.co.uk

Richard Care
Partner
Tel: 020 7694 2890
richard.care@kpmg.co.uk

Gina Craske
Director
Tel: 020 7311 6015
gina.craske@kpmg.co.uk

John Jenkins
Partner
Tel: 020 7311 6199
john.a.jenkins@kpmg.co.uk

James Cruttenden
Director
Tel: 020 7694 2763
james.cruttenden@kpmg.co.uk

Trevor Jones
Partner
Tel: 020 7311 5874
trevor.jones@kpmg.co.uk

David Honour
Director
Tel: 020 7694 2358
david.honour@kpmg.co.uk

Gavin Palmer
Partner
Tel: 020 7694 5885
gavin.palmer@kpmg.co.uk

Daniel Hurley
Director
Tel: 0161 246 4764
daniel.hurley@kpmg.co.uk

Created by OLIVER at KPMG and CREATE | OM020589A | CRT040956 | September 2015 | Printed on recycled material.

www.kpmg.co.uk