Milliman EV Publication

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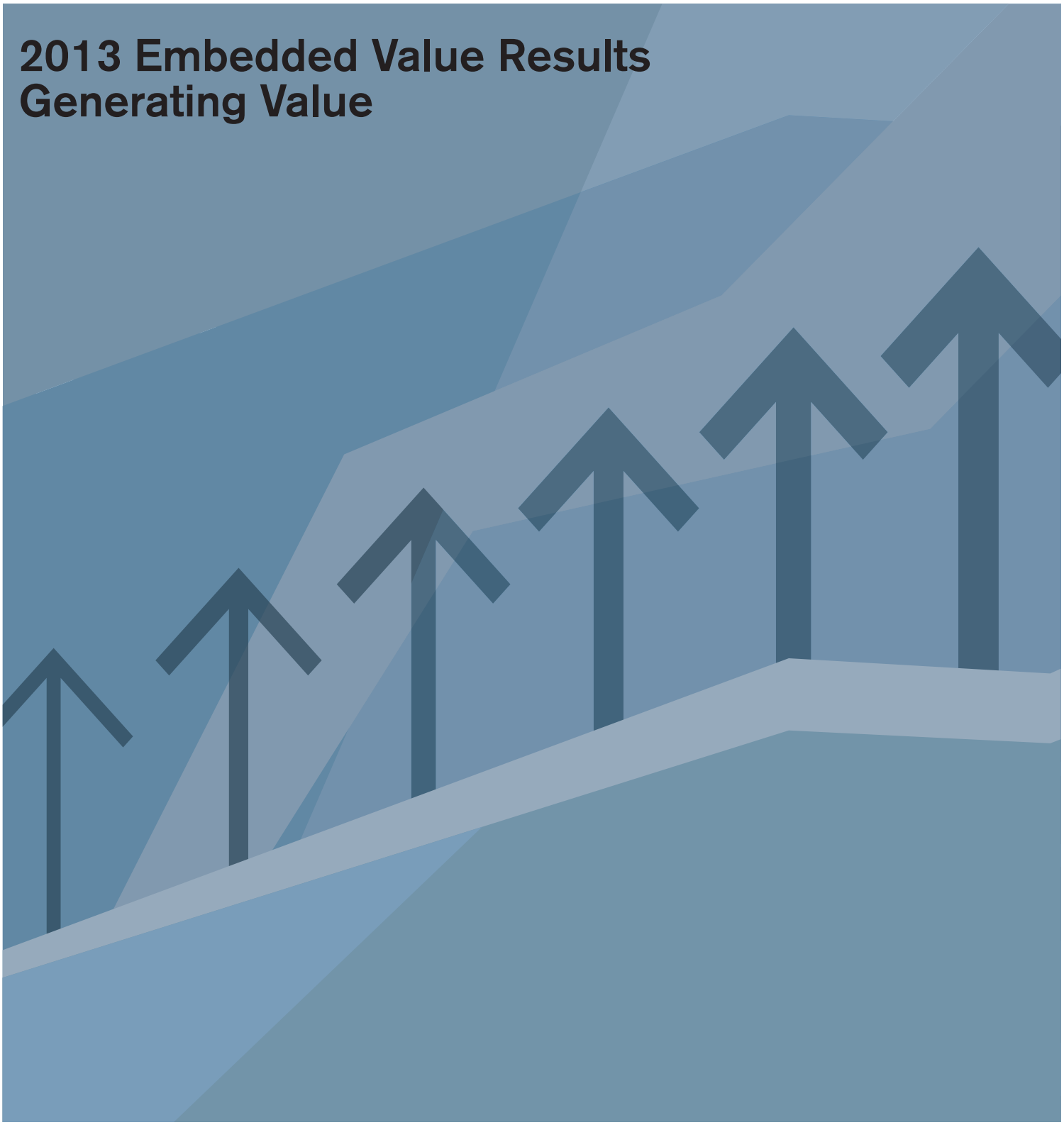
2013 Embedded Value Results
Generating Value



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EXECUTIVE SUMMARY

Background

- Developed economies saw improved economic growth in 2013. A continued trend of rising interest rates, narrowing credit spreads and strong equity markets point to increased market confidence.

- The Solvency II Omnibus II Directive passed through the European Parliament in November 2013, making the implementation date of 1 January 2016 legally binding. However, there has yet to be guidance or commentary from the European Insurance Chief Financial Officers Forum (CFO Forum) on the latest developments in Solvency II or what they may mean for the future of embedded value reporting. The latest statements from the CFO Forum have all been in relation to International Financial Reporting Standards (IFRS).

- Based on our review of 32 companies, around 40% continue to use the European Embedded Value Principles (EEV Principles) rather than the European Insurance CFO Forum Market Consistent Embedded Value Principles© (the MCEV Principles[1]). However, there is still a trend toward reporting on a market consistent basis such that over 95% now use some form of market consistent valuation in their embedded value reporting, based on our sample of companies.

Embedded Value Results

- The current CFO Forum members[2] (that disclosed their embedded values) reported a combined embedded value of £250 billion (€301 billion[3]) at the end of 2013 compared with £222 billion (€273 billion[4]) at the end of 2012. All of the member companies in the group, apart from one, reported higher embedded values at the end of 2013 than at the end of 2012.

- Of the current CFO Forum members, Allianz, AXA and Prudential reported the three largest group embedded values. The top performers (by percentage increase) were Generali, Hanover Re and Talanx.

New Business Results

- The value of new business also increased over 2013 with the current CFO Forum members[5] reporting a total value of new business of £11.9 billion (€14.3 billion) in 2013 compared with £9.8 billion (€12.0 billion) in 2012.

Embedded Value Methodology Hot Topics

- The framework used by companies in 2013 has generally remained static, with the overwhelming majority (some 95%) of companies applying some form of market consistent valuation. Generali now presents its embedded value disclosure as being compliant with the MCEV Principles (previously it reported as a market consistent EEV[6] company).

- Three key areas in embedded value methodology retain their place on the podium of *hot topics*. They are (1) the construction of the risk discount rate, especially the extrapolation methodology used; (2) the allowance for cost of capital, including the cost of residual non-hedgeable risks; and (3) recognising the time value of options and guarantees.

1 Copyright© Stichting CFO Forum Foundation 2008.

2 Including Talanx, the latest member of the CFO Forum.

3 Sterling to Euro exchange rate as at 31 December 2013.

4 Sterling to Euro exchange rate as at 31 December 2012.

5 Excluding Lloyds TSB as they did not disclose 2013 value of new business.

6 The term 'market consistent EEV' is used to describe a company disclosing embedded value results in line with the EEV principles but on a market consistent basis.

Construction of the Risk Discount Rate

- All companies included in our study used a bottom-up approach to determine the risk discount rate, with the exception of Legal & General, which used a top-down approach.

- Around three-quarters of companies use only swaps as the underlying basis for the risk-free yield curve, with the remainder using government bonds. There are a number of companies that use government bonds for business based in countries without a deep and liquid swap market.

- A handful of companies make a small adjustment to the risk-free rate for credit risk based on London Interbank Offered Rate (LIBOR) swaps.

- Although there have been significant developments in Solvency II, all companies have generally used the same methodology to derive liquidity premiums as used at the end of 2012, namely that from Solvency II's fifth Quantitative Impact Study (QIS5). No company in this study used the approaches for the matching adjustment detailed in the Long-Term Guarantees Assessment (LTGA), perhaps because it was unclear which method would be considered the most appropriate or possibly because the methods in the LTGA are more computationally intensive and place greater restrictions on the application of the matching adjustment than the QIS5 approach.

- Liquidity premiums for the majority of companies were lower at the end of 2013, reflecting the narrowing of credit spreads, with some companies seeing decreases of up to 50% for certain territories. Despite this, the majority of liquidity premiums for the material business across all companies were in the range of 20 to 100 basis points (bps) at the end of 2013 compared with the range of 30 to 130 bps at the end of 2012. No reinsurers included in our study applied a liquidity premium, consistent with the methodology used for year-end 2012.

- Sensitivities to the liquidity premium were, again, generally reported as a 10 bps addition to the liquidity premium or the removal of the liquidity premium, where applied. Some companies that made no allowance for the additional return expected in respect of liquidity exposure in their base disclosures showed sensitivities to the inclusion of a range of liquidity premia.

- Around two-thirds of the companies disclosed that they were using extrapolation techniques. Of those disclosing their extrapolation methodologies, the QIS5 approach again was most popular, with the majority of these companies using parameters in line with the latest Solvency II guidelines. The change in extrapolation approach can have a very significant impact on companies' embedded value results, with some companies restating their 2012 results for changes made to be in line with latest Solvency II guidelines.

Cost of Capital / Cost of Residual Non-Hedgeable Risks

- Overall, for MCEV companies that disclosed their equivalent cost-of-capital charge for residual non-hedgeable risks, the average equivalent charge fell marginally from 3.4% at the end of 2012 to 3.3% at the end of 2013.

- Of companies reporting under MCEV in our study, the vast majority of companies maintained the same cost-of-capital assumption as at the end of 2012. One company lowered its charge from 6.0% to 4.5%, moving more in line with industry practice but away from Solvency II guidance. One company increased its cost-of-capital charge from 3.6% to 3.9%. Two other companies disclosed a lower equivalent cost-of-capital charge but this may not be directly the consequence of a change in methodology as they did not apply the cost-of-capital approach.

Time Value of Options and Guarantees

— In general, market-consistent approaches were used to value options and guarantees. In addition, implied volatilities for interest rates and equities were based on year-end data; companies generally used at least 1,000 economic scenarios in their stochastic models.

— Many companies disclosed allowances for dynamic policyholder behaviour in certain economic scenarios. The same companies disclosed modelling of dynamic policyholder behaviour at the end of 2013 as at the end of 2012.

Disclosures

- Whilst convergence continues, differences in the interpretation and application of the EEV Principles and the MCEV Principles by companies remain. This may continue to present challenges for investors and analysts alike in carrying out direct comparisons. Embedded value results nevertheless continue to provide useful insights in terms of emerging trends, current position and future developments regarding profitability, sustainability of capital sources and creditworthiness.

Other Measures of Value

- Insurance companies' market capitalisations have generally become higher than their embedded values, with market capitalisation being 110% of embedded value on average at the end of 2013 compared to 90% at the end of 2012, which is, amongst other things, a reflection of the recovery in equity markets.

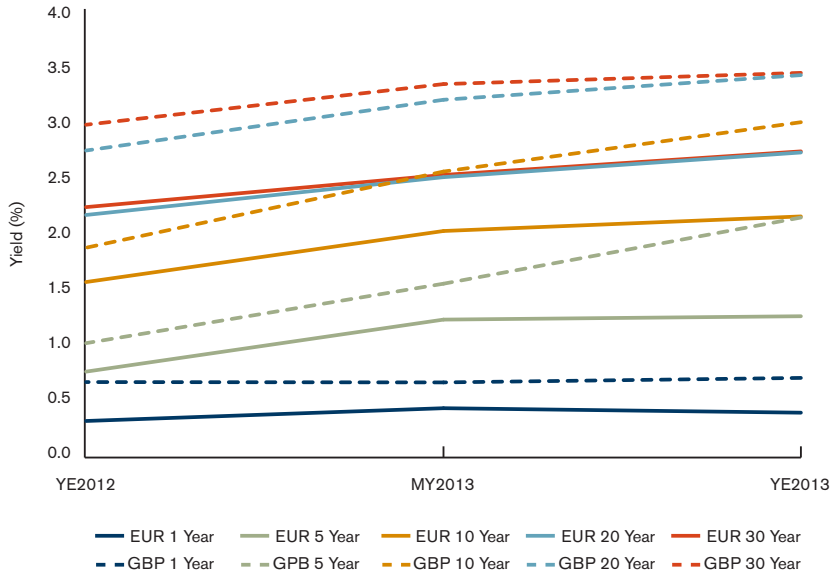
- The year 2013 was a key one for financial and solvency reporting, with major milestones reached in both Solvency II and IFRS. The International Accounting Standards Board (IASB) issued an Exposure Draft in June 2013 on reporting for insurance contracts (now closed to comments), while the Financial Accounting Standards Board (FASB) separately published a proposed Accounting Standards Update, also in June 2013. The IASB has a number of areas to discuss further before publication of the final standard, expected in 2015. With Solvency II becoming legally enforceable from 1 January 2016, companies are likely to face a number of challenging years in terms of adapting to new reporting requirements.

- Given the different intended purposes of embedded value and Solvency II reporting, it remains to be seen how achievable convergence will be in practice. This will ultimately depend on whether or not additional margins of prudence are imposed under Solvency II, such as restrictions on the application and size of the liquidity premium and the allowance for non-hedgeable risks.

INTRODUCTION

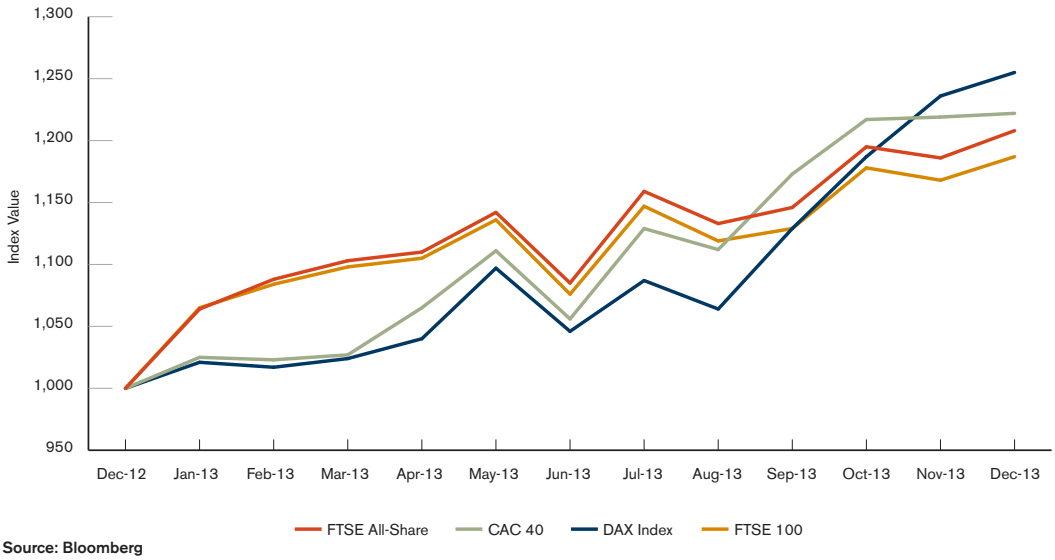
After a number of years of challenging economic conditions, 2013 saw a continuation of the improvement in the financial landscape experienced in 2012, along with stabilisation in economic growth in the developed world. Positive trends in the financial markets continued with increased interest rates (see Figure 1) and equity returns (see Figure 2) leading to positive economic variances for many companies. Lower volatilities and tighter credit spreads helped to reduce guarantee costs for many companies. The challenging market conditions of previous years appear to have resulted in product repricing and redesign, which led to many companies reporting improved new business margins and overall value of new business.

FIGURE 1: RECENT TRENDS IN GBP AND EUR SWAP RATES



Source: Bloomberg

FIGURE 2: RECENT EQUITY MARKET PERFORMANCE



Source: Bloomberg
Indices above are the gross total return indices and have been rebased to 1,000 as at 31 December 2012

Markets were much more buoyant in 2013, reflecting the general recovery in equity and debt markets.

Markets were much more buoyant in 2013, reflecting the general recovery in equity and debt markets. The comparison between market capitalisation and embedded value improved vastly, with the average market capitalisation as a percentage of total embedded value rising from 90% at the end of 2012 to almost 110% at the end of 2013. Growth remained low in 2013 and was negative in the Eurozone. Growth in the UK recovered to an extent, which is reflected in the increase in the ratio of market capitalisation to embedded value for UK companies. However, uncertainty remains mainly because of debate over when increases to interest rates should occur. The Bank of England's latest projections for growth included two scenarios, with interest rates remaining at a constant 0.5% in one scenario and the other scenario being based on market expectations of interest rates.

In November 2013, with the passing of the Omnibus II Directive, the effective timetable and transitional arrangements for the implementation of Solvency II became much more certain. In addition to the implementation date of January 2016 becoming legally binding, the Technical Specifications for the Preparatory Phase (TSPP), published in April 2014, give a much clearer picture of the final requirements. The CFO Forum has not, at the time of writing, issued any further guidance as to allowances that should be made for Solvency II in embedded value disclosures. The most recent transitional guidance issued in September 2012 stated that, until such time as all relevant standards, guidance and the effective date are finalised, there would be no requirement to make allowance for the developing Solvency II regime when applying the European Insurance CFO Forum Market Consistent Embedded Value Principles (MCEV Principles) or the European Embedded Value Principles (EEV Principles). Many of the companies that reflected the latest Solvency II developments as at year-end 2012, continued to do so for year-end 2013 disclosures. To encourage consistency in methodology and to allow comparison of disclosures, we believe there will be increased need for the CFO Forum to provide guidance leading up to the implementation of Solvency II. In particular, a number of companies (mainly those incorporating the Long-Term Guarantees Assessment (LTGA) technical specifications last year) reflected the longer convergence period of 40 years specified in the TSPP for the extrapolation of the yield curve.

Other regulatory changes, such as International Financial Reporting Standards (IFRS) 4 Phase II for insurance contracts reporting, are on the horizon for insurers, with a revised exposure draft issued in June 2013. This exposure draft has now been closed to comments. The International Accounting Standards Board (IASB) has already made tentative decisions on some of the areas consulted upon, but there are a number of items requiring further discussion by the IASB before publication of the final standard, which is expected in 2015.

In this publication, we focus on embedded value results as at year-end 2013. In addition to providing an overview of the methodology companies used and commenting on any developments, we have covered a range of current *hot topics* that companies may wish to consider when developing and enhancing their embedded value approaches in the future. These include:

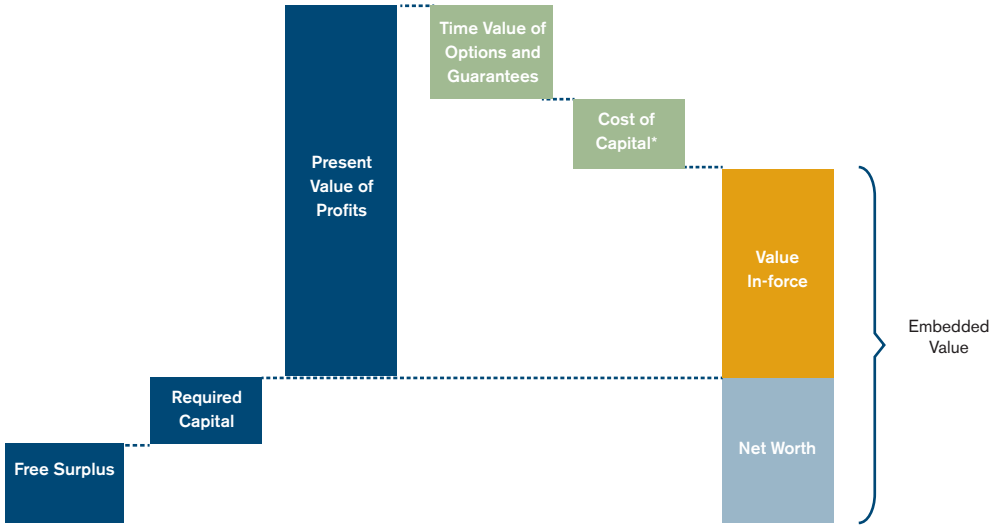
- Determining the risk discount rate (RDR)
- Calculating the cost of capital (CoC)
- Assessing the cost of residual non-hedgeable risks (CRNHR)
- Evaluating the time value of options and guarantees (TVOG)
- Disclosures in embedded value reporting
- Other measures of value (market capitalisation, IFRS and Solvency II)

Before covering these topics in detail, we also provide a high-level overview of some of the key components of an embedded value calculation.

EMBEDDED VALUE OVERVIEW

The embedded value of a company is intended to be a measure of the value of the shareholders' interests in the business. Over time, various principles and guidance have been issued by industry bodies to achieve consistency in the way embedded values are calculated between companies and reporting periods. Two of the main sets of guidance currently used by companies are the EEV Principles and the MCEV Principles. A brief outline of the methodology under these sets of principles, including key terminology, is described below and shown in Figure 3.

FIGURE 3: SUMMARY COMPONENTS OF EMBEDDED VALUE



* Under the MCEV Principles, the cost of capital is split into frictional costs and the cost of residual non-hedgeable risks. Companies reporting under EEV Principles may also choose to adopt this approach.

Under both the MCEV and EEV approaches, the embedded value is calculated as the sum of the *net worth* and *value of in-force* (VIF) of the covered business which, according to Principle 2 of both the EEV and the MCEV Principles, is defined as contracts regarded by local supervisors as being long-term life insurance business.

Under both the MCEV and EEV approaches, the embedded value is calculated as the sum of the net worth and value of in-force (VIF) of the covered business which, according to Principle 2 of both the EEV and the MCEV Principles, is defined as contracts regarded by local supervisors as being long-term life insurance business.

The covered business may also include short-term life insurance business, long-term accident or health insurance business, or group risk business. Under MCEV Principles, companies may disclose the Group Market Consistent Embedded Value (Group MCEV) which is a measure of the consolidated value of shareholders' interests in the total business of the company. The Group MCEV includes the unadjusted IFRS net asset value of the non-covered business (all business not classified as covered).

The *net worth* is equal to the *required capital* plus *free surplus* where:

- **Required capital** is the market value of assets, attributed to the business over and above that required to back the liabilities for the business and whose distribution to shareholders is restricted. The level of required capital may be set by reference to regulatory capital requirements, levels of capital requirements that achieve a target credit rating, internal model capital requirements, or a combination of these.
- **Free surplus** is the market value of any assets allocated to, but not required to support, the in-force business at the effective date of the embedded value calculation.

The *VIF* is equal to the *present value of future profits* (PVFP) less the *time value of options and guarantees* less the *cost of capital* where:

- **Present value of future profits** is the present value of the net of tax shareholder cash flows from both the in-force business and the assets backing the associated liabilities. The PVFP includes an allowance for the intrinsic value of financial options and guarantees but not cash flows arising from projected future new business. The economic assumptions used to calculate the PVFP can differ under EEV Principles and MCEV Principles. Under EEV, the PVFP may be calculated using real-world investment return assumptions and a discount rate that includes a margin for risks not captured elsewhere in the calculation. Under MCEV, the PVFP is typically calculated using a *certainty equivalent* approach whereby assets are assumed to earn a return based on a risk-free curve and all cash flows are discounted using the same risk-free curve, though other approaches are possible.

- **Time value of options and guarantees** is the additional value of financial options and guarantees above the intrinsic value already allowed for in the calculation of the PVFP. This is typically calculated using stochastic techniques.

- **Cost of capital** is a deduction from the PVFP in respect of the additional costs from investing in assets backing the required capital via an insurance company rather than directly. Under EEV, the CoC is the difference between the required capital held at the effective date of the embedded value calculation and the present value of the projected releases of the required capital. Whereas under MCEV, the CoC is split into two independent components; the *frictional costs of capital* and the *cost of residual non-hedgeable risks.*

  — **Frictional costs of capital** reflect items such as the taxation and investment costs that arise on the assets backing the required capital.

  — **Cost of residual non-hedgeable risks** reflects the expected cost of capital related to non-hedgeable risks that can have an asymmetric impact on shareholder value (to the extent that these risks have not already been reflected in the PVFP or TVOG). These can include both financial and non-financial risks.

The breakdown of the number of companies from our sample of 32 using EEV, market consistent EEV[7] and MCEV Principles is shown in Figure 4. In addition, some companies follow equally valid approaches that do not entirely conform to either the MCEV or EEV Principles and these are captured under 'Other'. For example, Swiss Re reports under a basis known as its Economic Value Management framework.

The framework used by companies in 2013 has generally remained static, with the overwhelming majority of companies (some 95%) applying some form of market consistent valuation. Generali now states that its disclosure complies with the MCEV Principles. Figure 4 shows the position of companies at year-ends 2012 and 2013.

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FIGURE 4: EV REPORTING PRINCIPLES

EV REPORTING PRINCIPLES	2012			2013		
	CFO FORUM MEMBERS	OTHER COMPANIES	TOTAL	CFO FORUM MEMBERS	OTHER COMPANIES	TOTAL
EEV	1	0	1	1	0	1
Market Consistent EEV	7	5	12	6	5	11
MCEV	8	9	17	9	9	18
Other	2	0	2	2	0	2
Total	18	14	32	18	14	32

Notes:

1. Irish Life has been acquired by Great-West Lifeco through its subsidiary Canada Life and is excluded from 2013 analysis.
2. Four companies have been added: Mapfre, Talanx, Baloise and Uniqa. Mapfre and Talanx are members of CFO Forum.
3. Swiss Re did not report explicitly under either EEV or MCEV Principles but under a framework called Economic Value Management. Prudential uses market consistent approach for shareholder-backed annuities and EEV Principles for the rest of the business.

7 The term 'market consistent EEV' describes a company reporting in compliance with the EEV principles but on a market consistent basis.

EMBEDDED VALUE RESULTS

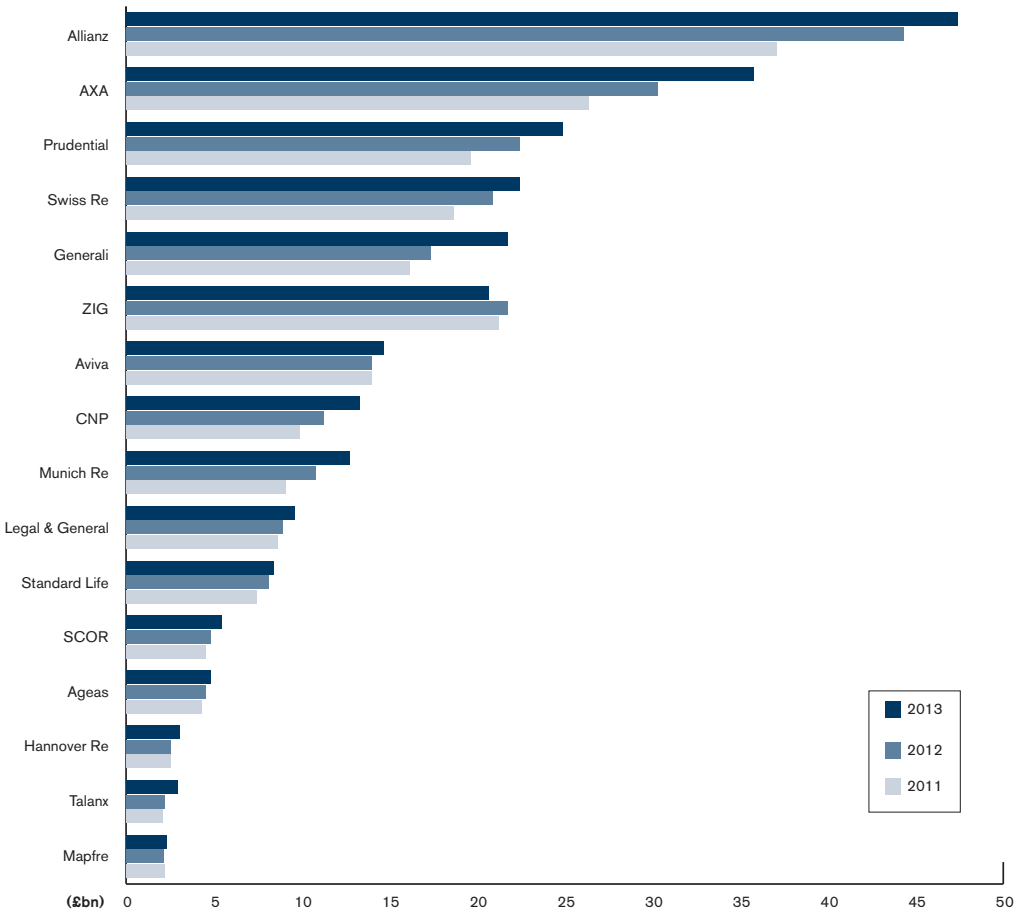
Embedded Value

In 2013, many developed economies experienced improved economic growth. Generally, this resulted in an improving equity market performance, decreasing volatilities, narrowing credit spreads and a more favourable economic climate for insurers to operate in than experienced in 2012. The current CFO Forum members (that disclosed their embedded values at the end of 2013) had a combined embedded value of £250 billion (€301 billion) at the end of 2013 compared with £222 billion (€273 billion) at the end of 2012. Figure 5 shows the embedded value results of current CFO Forum members over the last three year-ends.

All companies included in this study, apart from one, saw increases of varying degrees, in their group embedded values, compared with 2012.

All companies included in this study, apart from Zurich Insurance Group (ZIG), saw increases, of varying degrees, in their group embedded values, compared with 2012. The decrease for ZIG was the result of a fall in the value of its non-covered business.[8] Looking at its covered business in isolation, ZIG also experienced an increase in embedded value.

FIGURE 5: PUBLISHED EMBEDDED VALUE RESULTS OF CFO FORUM MEMBERS AT YEAR-END 2011, 2012 AND 2013



Notes:
1. Ageas' embedded value is the total of 'life' and 'non-life & other insurance'.
2. Talanx has a 50% holding in Hannover Re. The embedded value for Talanx includes this participation in Hannover Re.
3. Aegon and Lloyds TSB are not included in Figure 5 as they did not disclose their embedded values at the end of 2013.

8 Predominantly business managed outside Zurich Insurance Group's Global Life segment, which includes general insurance and business management relating to Property and Casualty insurance and Farmers' exchanges.

The embedded values considered in Figure 5 include both covered and non-covered business. Allianz, AXA and Prudential take the top three positions in terms of the largest combined business embedded values. During 2013, the top performers based on percentage increases in embedded value were Talanx,[9] Generali and Hannover Re.

- The growth in the embedded value of Talanx was enhanced by the improved economic conditions in 2013 for both primary and reinsurance business. An internal strengthening of Talanx's capital to the life and health subsidiaries supported the writing of higher volumes of business and had a positive impact on its MCEV.

- The main driver of Hannover Re's return on embedded value was a significant value of new business, which was driven by UK longevity swap transactions for domestic business and traditional US mortality business and structured Yearly Renewable Term transactions for foreign business. Hannover Re is partly owned by Talanx and so good new business performance of Hannover Re also contributed to Talanx's returns.

- Generali's strong performance in 2013 was driven by stable operating embedded value earnings and positive economic variances. A more favourable economic environment in Europe, with rising swap yields, narrower credit spreads and good equity market performance resulted in an improvement in the value of Generali's in-force business. The value of new business rose as improvements to new business margins outweighed a lower volume of new business in terms of Annualised Premium Equivalent[10] (APE). This was a result of actions taken by the company to preserve or improve the profitability of its savings business. Returns in Central Europe were negatively impacted by the pension fund reform in Poland discussed in further detail later in this section.

Some of the more modest percentage increases in embedded value were seen by Ageas, ZIG and Standard Life.

- Ageas experienced a modest increase in its MCEV. This increase was driven by a positive, but lower, performance than last year in areas such as investment experience and value of new business. Opening adjustments also led to a significant decrease in its embedded value. The main component was a negative contribution of €109 million (£91 million) from changing the yield curve extrapolation from 10 years to 40 years of convergence. Ageas also paid out significant dividends of €433 million (£360 million) during 2013.

- For Standard Life in 2013, all regions continued to make broadly similar contributions to the group embedded value as in 2012. However, factors such as adverse foreign exchange movements (mostly relating to Canada), the payment of a special dividend to equity holders, higher investment costs and lower benefits from management actions dampened the embedded value growth over 2013.

- ZIG's core business showed an overall positive performance and an increase in MCEV with increased contribution from new business. This was partially offset by operating assumption changes (management changes to expense methodology) and other operating variances. The non-covered business showed a significant decrease in value, outweighing all other positive contributions.

Value of New Business

Some companies noted that improved value of new business mainly stemmed from management actions on repricing and redesigning the products following years of challenging economic conditions. Overall, results for new business were fairly positive for the majority of companies in our sample. The total value of new business (VNB) written by the current CFO Forum members (that disclosed their value of new business at the end of 2013) reached £11.9 billion (€14.3 billion) in 2013, compared to £9.8 billion (€12.0 billion) in 2012.

Overall, results for new business were fairly positive for the majority of companies in our sample.

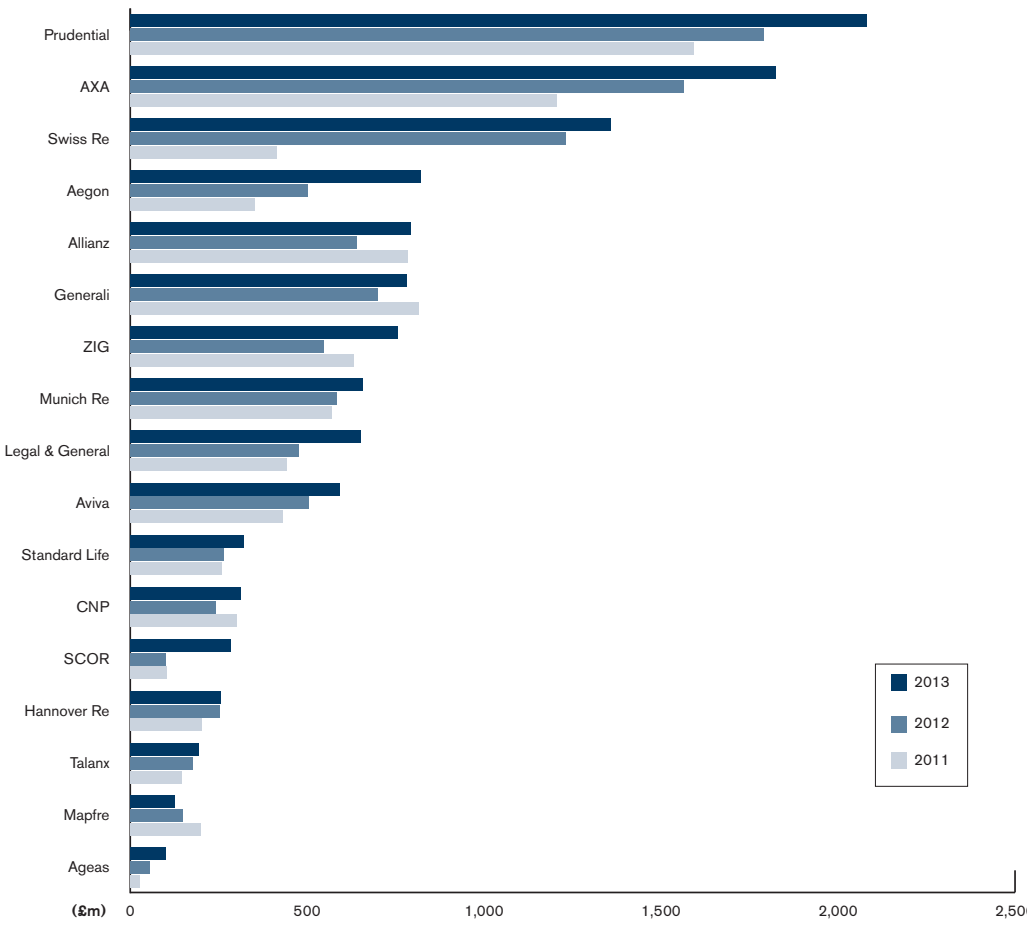
9 Talanx is in the top performers after exclusion of the effect of Hannover Re's embedded value improvement.

10 The 'annual premium equivalent' is defined as the total annual premium for regular premium business and 10% of the premium written for single premium business.

Figure 6 shows the value of new business over the last three years for the CFO Forum members disclosing their new business results. Prudential, AXA and Swiss Re took the top three positions in terms of VNB in 2013. The top performer based on percentage increase in the VNB was SCOR, which saw a significant increase in VNB in 2013 compared to 2012, primarily driven by growth in new business from the existing franchise and large deals written in 2013.

Underlying the value of new business results, the average new business margin[11] for the CFO Forum members increased to 3.6% in 2013 from 3.2% in 2012.[12] There was approximately a 5.6% increase in volumes over 2013 (2.0% in 2012). All companies in the CFO Forum that disclosed their VNB, experienced a rise in their VNB, apart from Mapfre. The majority of the companies (80%) increased their new business volumes and a significant part (70%) saw the improvement of new business margins.

FIGURE 6: PUBLISHED VALUE OF NEW BUSINESS BY CFO FORUM MEMBERS AT YEAR-END 2011, 2012 AND 2013



Notes:
1. Swiss Re VNB only includes the value from its underwriting activities.
2. Talanx has a 50% holding in Hannover Re. The VNB for Talanx includes this participation in Hannover Re.

11 Throughout this report, 'new business margin' is defined as the ratio of VNB to the present value of new business premiums.

12 This excludes Aegon and Swiss Re.

Wider factors impacting results

There have been a number of fundamental regulatory changes in Europe that came into force in 2013 and 2014 which have had an impact, or are likely to have an impact in the near future, on embedded value results. Paramount amongst those for UK companies is the Retail Distribution Review (RDR) which resulted in significant changes in sales procedures. In the following, we give a brief overview of some of the more significant developments in regulation and tax over 2013 and the first half of 2014. Impacts of developments in Solvency II and IFRS are discussed separately in the 'Other measures of value' section of this report.

Retail Distribution Review (RDR)

The RDR led to a series of regulatory changes in the areas of sales processes and financial adviser charging structures in the UK. Whilst the impacts are yet to fully emerge, the general experience since the RDR was introduced has been reduced persistency levels and lower new business volumes. For example, ZIG quotes a $176 million (£106 million, €128 million) decrease in the APE for sales in the UK from individual savings business as a direct result of the RDR. Resolution (Friends Life) experienced a negative £17 million (€14 million) operating variance. This was due to worse than expected persistency experience, which it states is a result of the RDR.

Finance Act 2012

In the UK, Her Majesty's Revenue and Customs (HMRC) introduced changes to the taxation of insurance companies in anticipation of the introduction of Solvency II. The fundamental change is a move to an accounts basis for the calculation of trading profits and changes to the taxation of protection business. These alterations generally had an adverse effect on the UK life protection market but some companies, depending on their tax positions, benefitted from these changes as a result of improved competitiveness.

Auto-enrolment

Auto-enrolment into workplace pension schemes is becoming mandatory for employers in the UK. Implementation is being staggered over a number of years and started with the largest employers in 2013. Whilst auto-enrolment is expected to be a source of growth for insurance markets, bringing new customers to the market for the first time, the current impact on some companies has been negative because of the need to establish short-term provisions to cover anticipated adverse persistency for group business.

Budget: UK

As part of the budget announced on 19 March 2014, the UK government proposed to remove current restrictions on access to pension savings upon retirement. This may have a significant impact on the levels of future annuity new business. Due to the timing of the budget announcement, it is unlikely that any allowance for the impacts of this development will have been made in any company's embedded value disclosure. It will likely have a significant impact on insurers' operating assumptions for annuity business.

Poland pension reform

Under a new law, effective from February 2014, open pension funds (OPFs) would be obliged to transfer a significant part of assets (51.5% in total across the industry) to the Polish Social Security Institution, Zakład Ubezpiecze Społecznych (ZUS). Also, contributions to OPFs would no longer be mandatory for clients and members will be required to declare whether their future premiums should be transferred to a chosen OPF or the ZUS; if no selection is made, all future contributions will be transferred to the ZUS. Commencing 10 years before reaching retirement age, there would be a gradual transfer of funds to the ZUS and all retirement pensions will be paid out by ZUS. This had a negative impact on the embedded value of companies operating in the region.

In particular, AXA described a large decrease in new business value over 2013 as a result of this reform, along with a significant non-operating variance which appears to be related to the transfer of assets required under the reform. PZU has reclassified some of its pension business as non-covered business which is consequently valued on an IFRS basis for 2013 year-end onwards. PZU states that it is difficult to consider this business long-term business due to the requirement for fund members to actively opt for future premiums to go to PZU rather than the ZUS. Similarly, Generali's negative non-operating variance of €185 million (£154 million) is mainly attributed to the transfer of assets to the ZUS.

Local Interim Solvency Regulations

The Dutch Central Bank introduced new requirements effective from January 2014. Under new regulation, Solvency I capital requirements will remain in force but insurers' capital positions will also be assessed against a new risk-based supplementary capital buffer. Companies have not yet allowed for this in the determination of their required capital. Similarly, the Danish regulator implemented new capital requirements from the beginning of 2014 which are based on an adjusted QIS5 set of rules. Sweden also moved towards using the Solvency II discount rate for solvency assessments (subject to an interim floor on the absolute level).

METHODOLOGY HOT TOPICS

Based on our analysis of companies' embedded value methodologies, evolving practices and emerging market trends continue in three key *hot topic* areas. These include (1) the construction of the risk discount rate, (2) how to allow for the cost of capital, including the cost of residual non-hedgeable risks, and (3) recognising the time value of options and guarantees. We consider each of these in detail below.

Risk Discount Rate

The risk discount rate is one of the key assumptions required for a company's embedded value calculation (under either MCEV or EEV) as it is used to discount the projected cash flows.

In determining the risk discount rate, companies consider a number of key areas, such as:

- Whether to construct the risk discount rate using a *bottom-up* or a *top-down* approach. To comply with the MCEV Principles, a *bottom-up* approach is required.
- The underlying basis for the risk discount rate – typically swap rates or the return on government-issued debt.
- Allowing for the inclusion of a liquidity premium (also referred to as matching adjustment under Solvency II).
- Extrapolating for longer durations where reliable data in the asset market may not exist.

Companies may adopt a number of different approaches to address these areas, which in some cases will be dependent on whether they are reporting under the EEV or MCEV Principles. An overview of the approaches used to determine the risk discount rates by companies as at year-end 2013 is provided in Figure 7. Each of these areas is expanded in further detail in the subsequent sections.

Construction of Risk Discount Rate

Companies can construct their risk discount rates using either a top-down or a bottom-up approach under EEV Principles. However, in practice, the bottom-up approach has become an industry standard with only one company (Legal & General), amongst those included in the study, continuing to use a top-down approach. The top-down approach considers the risks a company is exposed to as a whole in order to derive a risk margin that applies to all future cash flows. This may be achieved, for example, by considering the company's weighted average cost of capital. By comparison, a bottom-up approach considers the risks to which each cash flow (or group of cash flows) is exposed, to determine a cash-flow-specific risk margin. Under MCEV, a bottom-up approach is required, whereas under EEV companies can choose to use either a top-down or bottom-up approach.

Companies can construct their risk discount rates using either a top-down or a bottom-up approach under EEV Principles. However, in practice, the bottom-up approach has become an industry standard.

MCEV Principle 13 states that: '*VIF should be discounted using discount rates consistent with those that would be used to value such cash flows in the capital markets*'. To illustrate, equities are generally expected to yield returns above a risk-free asset to compensate for the additional risk inherent in equities. As such, under a market consistent basis, in order to value equity cash flows a risk discount rate that reflects the additional risk should be used. This logic equally applies to liability cash flows by valuing them consistently with traded assets that exhibit the same (or similar) characteristics. Therefore, where cash flows are fixed or vary linearly with market movements, companies can adopt the certainty equivalent approach (i.e., assets are assumed to earn a rate based on a risk-free curve and all cash flows are discounted using the same risk-free curve) so as to achieve the same result. However, where companies use illiquid assets to match their liabilities, this can be reflected in the risk discount rate. The certainty-equivalent approach may also be adopted by firms reporting under the EEV Principles.

FIGURE 7: OVERVIEW OF RISK DISCOUNT RATE CONSTRUCTION

OVERVIEW OF COMPANIES' APPROACHES TO DERIVING THEIR DISCOUNT RATE

Company	Principles	Risk Discount Rate Methodology	Underlying Basis for Risk Discount Rate	Liquidity Premium	Extrapolation of Risk-Free Curve
CFO Forum Members					
Ageas	EEV (MC)	Bottom-up	Swaps, -10 bps for credit risk	Yes, QIS 5[3]	Yes, LTGA[7]
Allianz	MCEV	Bottom-up	Swaps, -10 bps for credit risk	Yes, QIS 5	Yes, LTGA
Aviva	MCEV	Bottom-up	Swaps	Yes, QIS 5[4]	Yes, other[8]
AXA	EEV (MC)	Bottom-up	Swaps	Yes, QIS 5	Yes, LTGA
CNP	MCEV	Bottom-up	Swaps	Yes, QIS 5	Yes, LTGA
Generali	MCEV	Bottom-up	Swaps	Yes, QIS 5	Yes, LTGA
Hannover Re	MCEV	Bottom-up	Swaps	No	Not disclosed
Legal & General	EEV	Top-down	Gov. Bonds	Not disclosed[5]	Not disclosed
Lloyds TSB	EEV (MC)	Bottom-up	Swaps	Yes, method not disclosed	Not disclosed
Mapfre	EEV (MC)	Bottom-up	Swaps	Not disclosed	Not disclosed
Munich Re	MCEV	Bottom-up	Swaps	No	Yes, other[8]
Prudential	EEV (MC)	Bottom-up	Swaps (Annuities)[2] Gov. Bonds (Other)	Yes, method not disclosed	Not disclosed
SCOR	MCEV	Bottom-up	Swaps, -15 bps for credit risk	No	Yes, other[9]
Standard Life	EEV (MC)	Bottom-up	Gov. Bonds	Yes, method not disclosed	Not disclosed
Swiss Re	Other[1]	Bottom-up	Gov. Bonds	No	Not disclosed
Talanx	MCEV	Bottom-up	Swaps	Yes, QIS 5	Yes, LTGA
ZIG	MCEV	Bottom-up	Swaps	Yes, QIS 5	Not disclosed
Other Companies					
Chesnara	EEV (MC)	Bottom-up	Swaps	Not disclosed	Not disclosed
Baloise	MCEV	Bottom-up	Swaps	Yes, QIS 5	Yes, LTGA
Achmea	MCEV	Bottom-up	Swaps	Yes, method not disclosed	Not disclosed
Resolution (Friends)	MCEV	Bottom-up	Swaps	Yes, other[6]	Yes, other[10]
Mediolanum	MCEV	Bottom-up	Swaps	No	Yes, other[11]
Old Mutual	MCEV	Bottom-up	Swaps	Yes, method not disclosed	Yes, not disclosed
Phoenix	MCEV	Bottom-up	Gov. Bonds, +10 bps	Yes, method not disclosed	Yes, not disclosed
PZU	EEV (MC)	Bottom-up	Gov. Bonds	Not disclosed	Yes, other[10]
Royal London	EEV (MC)	Bottom-up	Gov. Bonds	Not disclosed	Not disclosed
St James's Place	EEV (MC)	Bottom-up	Gov. Bonds	Not disclosed	Not disclosed
Storebrand	EEV (MC)	Bottom-up	Swaps	No	Yes, other[12]
Swiss Life	MCEV	Bottom-up	Swaps	Yes, QIS 5	Yes, QIS 5[13]
Uniqa	MCEV	Bottom-up	Swaps, -10 bps for credit risk	Yes, QIS 5	Yes, QIS 5
VIG	MCEV	Bottom-up	Swaps	Yes, QIS 5	Yes, LTGA

Notes:
1 Swiss Re uses an Economic Value Management framework.
2 Prudential uses swaps for its UK shareholder-backed annuity business and government bonds for all other business.
3 QIS 5 methodology to deriving Liquidity Premium is to take 50% of [corporate spread over swaps less 40 bps] if greater than zero.
4 Aviva use 60% of [corporate spread over swaps less 40 bps] if greater than zero for US business.
5 An allowance for a liquidity premium can be regarded to be implicit within the spread over the risk-free rate for certain assets.
6 Methodology stated as consideration of negative basis trade and structural models.
7 Smith-Wilson approach using LTGA parameters.
8 Nelson-Siegel extrapolation methodology.
9 Insufficient information is given to determine whether QIS 5 extrapolation method used.
10 Assume last observable forward rate is constant after the last liquid point.
11 Spot rates after a certain duration are extrapolated at a rate equal to the slope of the curve in the preceding 10 years.
12 Norwegian and Swedish markets deemed insufficiently liquid beyond 10 years. Equilibrium rate used for 20+ years with linear interpolation between 10 and 20 years.
13 Smith-Wilson approach using QIS 5 parameters.

Basis for Risk-Free Rate

To begin the construction of a suitable risk discount rate curve, companies will typically identify returns on assets in the market that are a proxy to the *risk-free* rate. The MCEV Principles term this proxy the *reference rate*. In practice, the starting point for the reference rate is either government bonds or interest-rate swaps, based on interbank lending rates. However, in reality, no assets exist that are completely risk-free, as even bonds issued by the most secure government will carry some residual level of risk.

Based on our study, an increasing number of companies reporting under the EEV principles use swap rates as a starting point for the reference rate, with Lloyds TSB moving to use swaps instead of government bonds in 2013. This may come as no surprise, as MCEV Principle 14 states that swap rates should be used where they can be considered reliable. All but one company reporting under MCEV Principles use swap rates – Phoenix continued to use government bonds as the basis for its reference rate.

Based on our study, an increasing number of companies reporting under the EEV principles use swap rates as a starting point for the reference rate.

Companies that opted to use swap rates as the basis for their reference rates also needed to decide which swap rates to use. In the recent past, industry practice has seemed to suggest swaps based on interbank lending rates, such as the London Interbank Offered Rate (LIBOR) in the UK for sterling-based cash flows. As the underlying rate (e.g., LIBOR) contains some level of compensation for the credit risk associated with lending money to a bank, even for a short duration, an adjustment is sometimes made to the resulting interest rate curve. Four companies (Uniqa, Ageas, Allianz and SCOR) continued to apply a reduction to the swap rate of 10 to 15 basis points (bps). Lloyds also makes a reduction for credit risk.

The most recent Solvency II information issued at the end of April 2014, as Part II of the TSPP, proposes calculation of an allowance for credit risk as 50% of the average difference between swap and overnight deposit rates over a one-year period, subject to a cap of 35 bps and a floor of 10 bps. This is likely to be higher than any allowances we observed at the end of 2013 in our study. There may be an economic argument for companies to periodically review these adjustments in light of prevailing market conditions or associated solvency regimes.

In recent years, there has been an industry move to use overnight deposit rates such as the Sterling Overnight Index Average (SONIA) and the Euro Overnight Index Average (EONIA), instead of the traditional LIBOR, as the discount rate for swap valuation purposes. With Dodd-Frank and European Market Infrastructure Regulations (EMIR) fully under way, the use of this approach is getting more widespread within the banking industry. Most fixed-income desks use this methodology as standard in their market pricing. All clearing houses also use this discounting basis to calculate variation margin calls and receipts for cleared interest rate swap positions, and the entire interest rate swap market moves towards central clearing under the Dodd-Frank and European Market Infrastructure Regulations.

Use of a discount rate based upon SONIA, for example, may also have advantages over one based on LIBOR because:

- It is based upon data from actual transactions rather than a survey of anticipated transaction rates.
- It should contain less of a premium for credit risk as the term of the deposit is overnight rather than the usual three to six months for LIBOR.

This may indicate that a reference rate based on a SONIA swap rate may be considered a better proxy for a *risk-free* yield. The insurance industry though is reluctant to accept overnight indexed swaps (OIS) as the equivalent of a risk-free curve. The key reason for this is that, at present, the market for swaps with floating coupons based on SONIA is not as developed as that of LIBOR, in particular at longer terms. Therefore, a SONIA swap rate may not be suitable in determining the reference rate for an embedded value calculation because the duration at which data becomes unreliable is much shorter. If the market for such swaps were to become more developed then the use of SONIA swap rates may offer a valid alternative.

Our analysis of market data shows an increase of trading volumes in swaps based on SONIA of 23% and based on EONIA of 15% in 2013 compared with 2012; the vast majority of these swaps are at lower durations (under a year). Some European insurers are considering novating their swap portfolios from LIBOR floating rate to SONIA floating rate. It will be interesting to see how universally this change is adopted and if the market for longer-duration OIS swaps becomes more liquid as a result.

Allowance for Liquidity Premium

Typically, the additional return on an asset (such as a corporate bond) over the risk-free yield is considered to be made up of three key components, which compensate for (1) the expected cost of defaults of the issuer including recovery, (2) the uncertainty surrounding the unexpected cost of defaults, and (3) other risks predominantly thought to be in respect of the illiquidity of the asset, particularly in adverse conditions, known as the liquidity premium. Consequently, companies that closely match their asset and liability positions to mitigate spread risk may consider it appropriate to make an allowance for the latter part of the additional yield they expect to receive in the form of a liquidity premium adjustment.

Based on their disclosures, companies generally did not change the methodology used to determine the value of the liquidity premium, with most continuing to use that described in QIS5.

Based on their disclosures, companies generally did not change the methodology used to determine the value of the liquidity premium, with most continuing to use that described in QIS5 (rather than using one of the options under the LTGA). In summary, the QIS5 approach specified a liquidity premium estimate given by 50% of [spread less 40 bps], subject to a minimum of zero, where the 40 bps represented the long-term level of expected default costs and the 50% splits the remaining spread between the liquidity premium and the unexpected cost of defaults. In QIS5, the assumed spread was based on the spread of corporate bond yields over the swap curve in the relevant currency and duration determined in two stages (i.e., by taking the combination of the corporate bond spreads over government bond yields and the spread of swaps over government bond yields). Most companies also apportioned varying levels of the liquidity premium to different groups of business using the *bucket-style*[13] approach described under QIS5.

A few companies, such as Allianz and Swiss Life, disclosed that they did not use the two-stage approach described above to determine the US and European spreads over swaps. Instead, they determined the spreads directly using other sources of market data. For example, Allianz stated it believed determining spreads directly to be a more appropriate methodology, as the disturbances in some sovereign debt markets had led to distortions in government bond spreads.

13 Under QIS5, 100%, 75%, 50% or 0% of the calculated liquidity premium was applied, depending on the specific line of the company's business. These standard proportions are commonly known as the *risk bucket*. The factors considered in determining what proportion of the liquidity premium to apply to a category of business may include, inter alia, the duration of the business and predictability of cash flows. Generally, the use of a higher proportion of the liquidity premium would be justified on longer-duration business with more predictable cash flows, such as annuity business. The LTGA did not use the risk bucket approach.

For the purposes of the 2013 year-end embedded value reporting, no company in this study disclosed the use of the matching adjustment and volatility balancer as described in the Technical Findings on the LTGA issued by EIOPA in June 2013. The methods detailed within the LTGA were computationally more intensive and contained more restrictive conditions surrounding the application of the matching adjustment than the QIS5 approach to the liquidity premium. The incorporation of draft methodologies and parameterisations may also add an unwelcome element of volatility to insurers' disclosures, given the level of debate that has surrounded the matching adjustment and the counter-cyclical premium/volatility adjustment. At the end of 2012, these considerations may have given justification to companies to not change methodologies at that time, perhaps instead opting to await the publication of the results of the LTGA and the final Omnibus II text. As no companies have adopted the matching adjustment approach for the 2013 year-end, the QIS5 approach has now become somewhat of an industry standard for calculation of the liquidity premium and, as such, allows for a reasonable level of comparison if this methodology is consistently applied. Moreover, it is unclear which of the LTGA proposals would be most appropriate to use in determining embedded value liquidity premiums. With this in mind, and because the matching adjustment and volatility adjustment are still subject to finalisation, there may be increased divergence in the future between the discount rate used by companies under embedded value and Solvency II reporting.

In general, allowances for liquidity premiums have significantly decreased over 2013, as shown in Figure 8 on page 20. This reflects the narrowing of credit spreads observed in financial markets over 2013 and is not due to a shift in methodology.

Companies disclosing that they applied no liquidity premium adjustment at the end of 2013 continued to be predominantly reinsurers, including Hannover Re, Munich Re, Swiss Re and SCOR, but also still included insurers Mediolanum and Storebrand. Despite the increased focus on allowances for liquidity premiums, around a quarter of the companies in our study chose not to disclose whether they had applied liquidity premium adjustments or not. Legal & General adopted a top-down approach to setting its risk discount rates and therefore disclosed the yields that were used rather than the value of liquidity premiums, as they are implicit within the approach. Consequently, Figure 8 summarises only those companies for which the use and value of a liquidity premium adjustment was explicitly disclosed.

FIGURE 8: SUMMARY OF LIQUIDITY PREMIUM ADJUSTMENTS AS AT YEAR-END 2012 AND 2013

Company	Underlying Basis for Risk Discount Rate	Liquidity Premiium Method	Value at 2012 (bps)	Value at 2013 (bps)	Sensitivity
CFO Forum Members					
Ageas	Swaps	QIS5	43 (UK) 29-35 (Euro) 46 (US)	27 (UK) 20-24 (Euro) 38 (US)	No Liquidity Premium Liquidity Premium + 10 bps
Allianz	Swaps	QIS5	44 (Euro) 59 (US) 3 (Switzerland)	28 (Euro) 45 (US) 3 (Switzerland)	Not Disclosed
Aviva	Swaps	QIS5	130 (UK Annuities) 44 (France) 30 (Spain)	107 (UK Annuities) 28 (France) 18 (Spain) 7 (Ireland)	Liquidity Premium + 10 bps
AXA	Swaps	QIS5	75 (UK) 46 (Euro) 64 (US) 0 (Switzerland)	44 (UK) 30 (Euro) 49 (US) 0 (Switzerland)	No Liquidity Premium Liquidity Premium + 10 bps
CNP	Swaps	QIS5	37 (Euro)	29 (Euro)	Liquidity Premium + 10 bps
Generali	Swaps	QIS5	77 (UK) 44 (Euro) 59 (US)	52 (UK) 28 (Euro) 3 (Switzerland)	No Liquidity Premium Liquidity Premium + 10 bps
Lloyds TSB	Gov. Bonds	Not Disclosed	73 (UK Annuities)	91 (UK Annuities)	Not Disclosed
Prudential	Swaps (Annuities) Gov. Bonds (Other)	Not Disclosed	UK Annuities 96 (Existing business) 115 (New business)	UK Annuities 71 (Existing business) 91 (New business)	Liquidity Premium + 10 bps
Talanx	Swaps	QIS5	29 (primary annuity business) 22 (primary participating business)	20 (primary annuity business) 15 (primary participating business)	Not Disclosed
ZIG	Swaps	QIS5	44 (UK) 22 (Euro) 45 (US) 3 (Switzerland)	44 (UK) 22 (Euro) 45 (US) 3 (Switzerland)	Not Disclosed
Other Companies					
Baloise	Swaps	QIS5	37 (Euro) 5 (Switzerland)	22 (Euro) 0 (Switzerland)	No Liquidity Premium
Achmea	Swaps	Not Disclosed	37 (Euro)	22 (Euro)	Not Disclosed
Resolution (Friends)	Swaps	Other	75 (UK Annuities and Heritage)	60 (UK Annuities and Heritage Exisiting business)	No Liquidity Premium (annuity business)
Old Mutual	Swaps	Not Disclosed	OMLAC (SA) 50 (Immediate Annuities) 45 (Fixed bond)	OMLAC (SA) 50 (Immediate Annuities) 40 (Fixed bond)	Liquidity Premium + 10 bps
Phoenix	Gov. Bonds	Not Disclosed	60 (UK)	36 (UK)	Not Disclosed
Swiss Life	Swaps	QIS5	88 (UK) 48 (Euro) 68 (US) 28 (Switzerland)	56 (UK) 29 (Euro) 47 (US) 22 (Switzerland)	Not Disclosed
Uniqa	Swaps	QIS5	47 (Euro) 16 (CZ/HU/PL)	39 (Euro) 14 (CZ/HU/PL)	No Liquidity Premium
Vienna	Swaps	QIS5	34 (Euro) 2-34 (Other)	17 (Euro) 1-17 (Other)	No Liquidity Premium

Note: OMLAC (SA) is Old Mutual Life Assurance Company South Africa

At year-end 2013, liquidity premiums applied generally were within the region of 20 to 100 bps compared with 30 to 130 bps at year-end 2012. Furthermore, within these ranges, there has been a general downward shift in the values of the liquidity premiums applied. For the last two year-ends, one company in our sample disclosed the use of a liquidity premium in excess of 100 bps, namely Aviva, which maintained a liquidity premium in excess of 100 bps for its annuity business.

Recognising the sensitivity of the results to the liquidity premium, a number of companies also disclosed embedded value sensitivities to the size of the liquidity premium. These sensitivities were generally based on a 10 bps increase to the liquidity premium or the removal of the liquidity premium. Swiss Re does not include a liquidity premium in its main results, and therefore provides sensitivities to the inclusion of 10, 50 and 100 bps liquidity premiums, which result in an increase in embedded value. Similarly, Munich Re and Hannover Re disclose the sensitivity to the inclusion of a liquidity premium of 10 bps.

Yield Curve Extrapolation

In order to calculate the VIF component, some companies require a risk-free curve that extends to very long durations, reflecting both current market conditions and long-term economic views. This may pose a challenge where available market data is of a shorter duration than the projected cash flows. Even where data is available for very long swap contracts or sovereign bonds, as the case may be, the market may not be sufficiently deep or liquid for such data to be reliable. Therefore, to obtain suitable rates at such long durations, companies may extrapolate the risk-free yield curve from the last observed liquid market data point (*last liquid point*, or LLP) to some long-term equilibrium rate (sometimes referred to as the *ultimate forward rate*, or UFR). Extrapolating the risk-free curve from the LLP may help to reduce the impact on the VIF calculation of volatility that is due to demand and supply imbalances for the long durations in the asset market.

There are a number of extrapolation methods available to companies, such as:

- Assuming that a flat rate continues beyond a certain point
- Assuming a margin over government bond yields at longer durations
- Using the Smith-Wilson technique (consistent with QIS5/LTGA)
- Using the Nelson-Siegel method, which fits a model to the observed yield curve

Figure 7 on page 16 shows that, as was the case at year-end 2012, around two-thirds of the companies disclosed that they were using extrapolation techniques. Of those disclosing their extrapolation methodologies, the QIS5 approach was most prevalent, with the majority of them using the parameters of the latest Solvency II guidelines (LTGA or TSPP). Most of the companies using the QIS5 approach to extrapolation have changed the parameters used for the extrapolation, including the UFR and convergence period, to be materially in line with the LTGA/TSPP.

As was the case at year-end 2012, around two-thirds of the companies disclosed that they were using extrapolation techniques. Of those disclosing their extrapolation methodologies, the QIS5 approach was most prevalent, with the majority of them using the parameters of the latest Solvency II guidelines.

Suitable values for key inputs into the chosen extrapolation method, such as the LLP, the UFR and the period over which convergence to the UFR is achieved, can vary over time. As such, companies should ensure that these values are fit for their intended purpose before using them in their embedded value reporting. The change in extrapolation approach had a very significant impact on certain companies' embedded value results, with some companies restating their 2012 results for the change. For example, AXA reported a €485 million decrease (£403 million) in VIF because of the change in risk-free yield curve extrapolation parameterisation, which it has quoted as an opening adjustment to its embedded value. Similarly, Ageas allowed for the change in speed of convergence to the UFR which reduced its opening embedded value by €109 million (£91 million). Given the sensitivity of embedded value results to the extrapolation parameters, it will be interesting to see which method is chosen as a result of the LTGA and TSPP, both for Solvency II and embedded value reporting.

Cost of Capital

Cost of capital is typically reflected as a deduction from the PVFP to reflect the fact that assets backing the required capital are held within an insurance company rather than directly and, therefore, cannot be distributed to shareholders immediately. Additional costs may arise from investing in assets via an insurance company, such as additional taxation, investment expenses or the fact that investors do not have direct control over their capital (known as *agency costs*). Cost of capital may also arise in respect of non-hedgeable risks, which are covered separately in the next section.

Under Principle 8 of the MCEV Principles, '*an allowance should be made for the frictional costs of required capital for covered business. The allowance is independent of the allowance for non-hedgeable risks*.'

Companies reporting under MCEV Principles typically allow for the frictional costs of capital within the investment income on assets backing the required capital by:

- Projecting investment returns using the reference rate net of tax and investment management expenses
- Discounting using the reference rate gross of tax and investment management expenses

Companies may also adopt such an approach under the EEV Principles, especially if they use a market consistent basis. Alternatively, the cost of capital may be calculated based on the difference between the *real-world* investment return assumptions and the risk discount rate.

The majority of companies reporting a market consistent embedded value calculate the cost of capital using the frictional cost approach, which is the approach required under MCEV Principles. However, the definition of required capital differs between companies.

The majority of companies reporting a market consistent embedded value calculate the cost of capital using the frictional cost approach, which is the approach required under MCEV Principles. However, the definition of required capital differs between companies. As at year-end 2013, almost all companies disclosed that they set their required capital by reference to local regulatory requirements, with the vast majority of them also taking into consideration the result from an internal capital model. In addition, of those that disclosed the basis of their required capital, approximately a third of the companies disclosed the consideration of the level of capital also needed to achieve a certain target credit rating.

Cost of Residual Non-Hedgeable Risks

Generally, non-financial risks such as mortality, longevity, morbidity, persistency, expenses, operational and tax risks are regarded as non-hedgeable. By comparison, the majority of financial risks are generally considered to be hedgeable. However, there are still some financial risks that fall under the banner of non-hedgeable. These financial non-hedgeable risks often arise from uncertainty in setting best-estimate assumptions, which can arise from a lack of deep and liquid market information. To illustrate, companies may employ extrapolation techniques to determine appropriate risk-free rates to apply at longer durations and the impact associated with this uncertainty should be captured in the CRNHR, if not already allowed for in the PVFP or TVOG. Companies that do not recognise the impact of this uncertainty may potentially underestimate the CRNHR.

Principle 9 of the MCEV Principles states: '*An allowance should be made for the cost of non-hedgeable risks not already allowed for in the time value of options and guarantees or the PVFP. This allowance should include the impact of non-hedgeable non-financial risks and non-hedgeable financial risks. An appropriate method of determining the allowance for the cost of residual non-hedgeable risks should be applied and sufficient disclosures provided to enable a comparison to a cost of capital methodology.*'

When assessing the CRNHR, companies usually consider the following:

- The cost of non-hedgeable risks (NHR) where they have not already been allowed for in the PVFP or TVOGs
- The asymmetry[14] of risks and the impact that this has on shareholder value
- The cost associated with the uncertainty in setting best-estimate assumptions

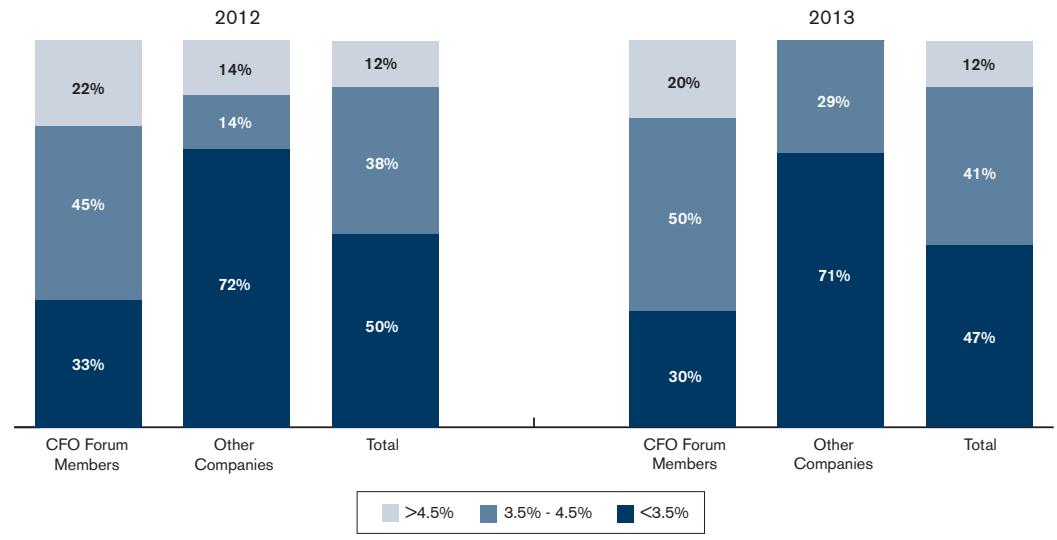
Under MCEV Principles, regardless of how companies allow for their CRNHR, the equivalent average cost-of-capital charge should be presented. The residual capital derived in respect of the residual non-hedgeable risks should be based on a company's internal economic capital model. The cost-of-capital charge represents the excess return or risk premium that investors might reasonably expect on capital exposed to such residual risks.

Companies may, however, determine the most appropriate level of internal capital over their self-determined future time horizons as appropriate for each company's business model and strategy. For example, selecting a higher confidence level in the capital calculation for the CRNHR may be in line with maintaining a target company credit rating. However, companies are required to express this as the equivalent average cost-of-capital charge based on the capital required on a 99.5% confidence interval over a one-year time horizon.

The majority of companies continue to use approximate methods to project the residual NHR-based capital, for example, by running off the initial capital derived over the projection term in line with certain drivers. The drivers reported by companies generally include reserves, premiums and sums at risk. The choice of drivers has generally remained stable.

Figure 9 shows the range of the equivalent average cost-of-capital charges based on the companies included in our analysis reporting under MCEV Principles, split by CFO Forum members and other companies. Most companies have kept the same methodologies and maintained their cost-of-capital charge consistent with last year.

FIGURE 9: EQUIVALENT AVERAGE COST-OF-CAPITAL CHARGE FOR NON-HEDGEABLE RISKS AT YEAR-END 2012 AND 2013



14 A risk where equal and opposite movements upwards and downwards result in financial outcomes that are not of equal magnitude.

A lower charge does not necessarily imply a weaker assumption or lower overall CRNHR. Instead, it may capture the different extents to which companies allow for NHR in their PVFP and TVOGs, diversification, varying business models and strategies, as well as the general differences in the wider embedded value methodologies adopted by companies. The equivalent average cost-of-capital charges differ across companies. At the lower end of the spectrum, one company made no allowance for the CRNHR, while the highest observed in our analysis was 7% per annum. The company which made no allowance stated that the CRNHR was not applicable because of the insurer's particular business model: the insurer has a closed book with no new business, using significant outsourcing, and the insurer states that it has succeeded in closing out significant legacy risks. This insurer discloses a CRNHR as a sensitivity to the main results.

The CRNHR has similarities to the proposed risk margin under Solvency II. A key difference between the risk margin and the CRNHR is that the risk margin covers all business and not just long-term business, whereas the CRNHR will be in respect of long-term business only. As such, the risk margin will have explicit allowance for diversification between covered and non-covered business, which is is different from the MCEV Principles.

The TSPP requires a cost-of-capital charge of 6% and, whilst not directly comparable, our analysis indicates this is potentially higher than the charge companies are currently considering in their MCEV reporting.

Some companies identified particular concerns with the CRNHR approach, citing that, according to the MCEV Principles, no allowance for further risk management actions is anticipated or reflected and that this was not representative of the company's future risk profile. Consequently, providing sensitivities will help companies to demonstrate to observers the future potential impact of their risk management profiles and plans.

Companies continue, in the main, to allow for diversification in line with the MCEV Principles, which states that diversification should not be allowed for between hedgeable and non-hedgeable risks or between covered and non-covered business in the CRNHR. However, a few companies, such as ZIG and Munich Re, have recognised diversification benefits between covered and non-covered business. This is in line with these companies' approaches at the end of 2012.

Many companies kept the cost-of-capital charge at a similar level as at the end of 2012.

Many companies kept the cost-of-capital charge at the same level as at the end of 2012. Of companies disclosing the equivalent cost-of-capital charge, for three companies the charge was reduced and one company increased the charge. Overall, the average across MCEV companies that disclosed the cost-of-capital charges at both the end of 2012 and 2013 fell from 3.4% at the end of 2012 to 3.3% at the end of 2013. In 2013 Achmea lowered its charge from 6% to 4.5%, moving away from Solvency II guidance and more in line with industry practice.

For some companies, the movement in charge may be caused by underlying movements in business mix. For example, at both the end of 2011 and the end of 2012, CNP used a frictional cost-of-capital approach on symmetrical risks and a 5% cost of capital on asymmetrical risks. The overall cost of capital fell from 2.8% at the end of 2011 to 2.4% at the end of 2012, and remained at that level for 2013. This may imply that there is relatively lower participating business or business with options or guarantees than in previous years. Similarly, for companies that do not use the cost-of-capital approach directly, the equivalent cost-of-capital charge could move as a result of lower expectations of investment expenses or taxation, or the treatment of diversification.

Certain challenges in this area still remain to be addressed going forward and there is likely to be continued evolution in this area. In addition to the approach to deriving the discount rate, the cost of capital applied in respect of residual non-hedgeable risks presents another area where embedded value supplementary reporting and supervisory reporting may diverge in the future. Moreover, it is an area where direct comparison of the cost of holding such capital may become more difficult.

Time Value of Options and Guarantees

The impact of financial options and guarantees can be split into two components. The first is the effect on the PVFP with respect to the intrinsic value of such financial options and guarantees. The second is the time value of financial options and guarantees. The TVOG is the difference between the central PVFP capturing the intrinsic impact and the average of the PVFPs over a range of scenarios obtained by stochastic calculations.

The TVOG corresponds to the asymmetry in the impact over a range of scenarios on the distributable earnings to shareholders. For example, in the case of participating contracts, profits are shared between shareholders and policyholders. Losses, however, are only shared up to a certain point, after which shareholders bear all the subsequent losses. This can be further exacerbated by the actions of policyholders (dynamic policyholder behaviour).

The time value of options and guarantees corresponds to the asymmetry in the distributable earnings to shareholders.

The features of products that generally give rise to an assessment of TVOG can include interest rate guarantees on traditional products, profit-sharing features such as bonuses or levels of credited rates, guaranteed benefits on unit-linked products and guaranteed annuity options.

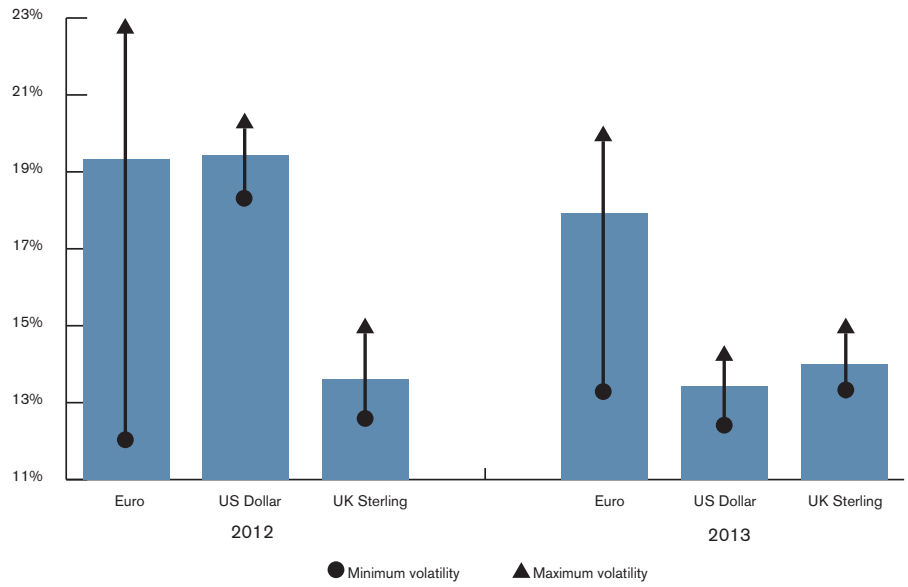
As noted, companies are required to assess the TVOG using stochastic techniques. Closed-form solutions can also be used where they lead to sufficiently accurate results but may not be suitable in valuing certain guarantees. The stochastic models must be appropriately calibrated and internally consistent with the rest of the modelling methodologies and approaches. Management actions can be allowed for which can include actions regarding the credited rate to policies, bonus rates, charges to asset shares and investment strategies. These management actions can be reflected, provided that such actions have passed through the company's normal governance and approval processes, are consistent with the operating environment and take into account the market reaction to discretion. For example, Phoenix discusses management actions in its diclosures covering a comprehensive suite of actions that may be taken in relation to investment, discretionary benefits and asset share charges in respect of guarantee costs, which have been signed off at a board level and therefore can be reflected in stochastic modelling.

Principle 7 of both the EEV and MCEV Principles requires firms to make an appropriate allowance for the potential impacts on shareholder values from financial options and guarantees. In carrying out this assessment, an important element is the calibration of companies' stochastic models to the implied volatility from appropriate financial market instruments.

For year-end 2013, virtually all companies that disclosed their approaches used end-period implied volatilities for interest rates and equities. Hannover Re continued to use end-September data for calibration purposes but reflected significant differences between September and December 2013 via an adjustment. The majority of companies continued to base volatility assumptions for property on historical analysis and expert opinion in the absence of meaningful option prices from which implied volatility could be accurately derived.

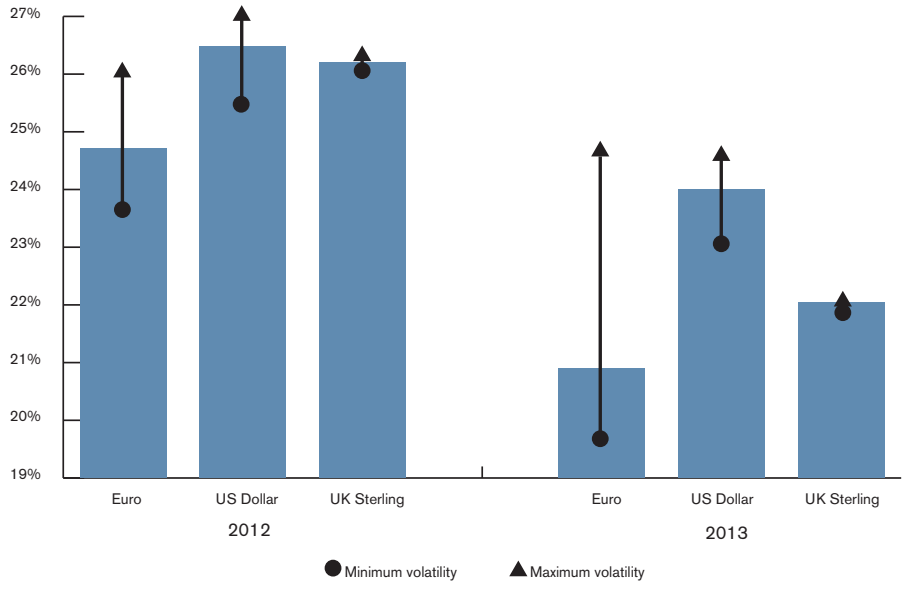
Figures 10A and 10B show the average, the highest and the lowest implied volatility levels used by companies complying with the MCEV Principles (where the volatility from swaptions shows the volatility of risk-free rates; and equity option volatility shows the volatility used for equity). Furthermore, the majority of companies continued to base asset correlations on historical market relationships. The MCEV guidance in this area requires companies to check correlations against external sources for reasonableness, which was, in part, in anticipation of future sources of correlation information becoming available.

FIGURE 10A: SWAPTION IMPLIED VOLATILITIES - AVERAGE, HIGHEST AND LOWEST FOR MCEV COMPANIES



Swaption implied volatilities are based on 20-year swap length, 20-year option term.

FIGURE 10B: EQUITY IMPLIED VOLATILITIES - AVERAGE, HIGHEST AND LOWEST FOR MCEV COMPANIES



Equities based on 10-year options.

As can be seen, implied equity volatility across the different regions decreased over 2013. Euro and US dollar interest rate volatility was also lower than last year while it increased marginally for sterling. Although the average level of equity volatility decreased universally, the range of volatilities disclosed for Eurozone countries was wider than this time last year. This is mainly a consequence of the volatility disclosed by Mediolanum which, at 24.5%, was higher by at least 3.5%, in absolute terms, than any other company included in our study. As Mediolanum's implied volatility is derived from the FTSE MIB 40,[15] it is likely to be a result of the economic environment in Italy at that time. All other companies disclosed implied equity volatilities in the range of 19.5% to 21.0% for Eurozone countries. There is also a wide range of interest rate volatilities disclosed for the Euro. This is to be expected as the swaptions used to derive these volatilities will depend on the country of issue, regardless of the currency.

Dynamic policyholder behaviour is included in many companies' assessments of TVOG. In particular, a number of companies recognise the impact of dynamic policyholder behaviour under certain economic scenarios. For example, if the guarantees attaching to certain product types (e.g. guaranteed annuity options) were projected to become in-the-money under certain scenarios it could result in higher take-up rates of the option and, possibly, an increase in the best-estimate assumption for the level of persistency.

At the same time, companies appear to be more actively disclosing their approaches. For example, Phoenix now explicitly discloses that they model dynamic policyholder behaviour when assessing the TVOG. In considering dynamic policyholder behaviour using traditional approaches, certain difficulties may be encountered in allowing appropriately for the rationality of policyholders exhibiting certain behaviours. However, recent developments in causal analysis and related techniques offer companies the opportunity to gain insight from the modelling of interactive events more robustly.

Figure 11 on the next page shows that, of those companies that disclosed the number of scenarios used, the majority applied 1,000 economic scenarios on a market consistent basis. One might reasonably expect that, with increased computing capabilities and heightened focus on the statistical distribution of (particularly asymmetric) risks, companies might move to increase the number of scenarios considered in their stochastic modelling. It is an area that may be subject to development in the coming years as companies complete their preparations for Solvency II.

Of those companies that disclosed the number of scenarios used, the majority applied 1,000 economic scenarios on a market consistent basis.

15 The FTSE MIB 40 is the primary benchmark index for the Italian equity market and is based on the 40 largest companies by market capitalisation on the Borsa Italiana.

FIGURE 11: TIME VALUE OF OPTIONS AND GUARANTEES – NUMBER OF SCENARIOS AND POLICYHOLDER BEHAVIOUR

COMPANY	OPTIONS AND GUARANTEES	SCENARIOS	USE OF DYNAMIC POLICYHOLDER BEHAVIOUR
CFO Forum Members			
Ageas	Market consistent	1,000	No
Allianz	Market consistent	1,000 (5,000 in Germany)	Yes
Aviva	Market consistent	At least 1,000	Yes
AXA	Market consistent	At least 1,000	Yes
CNP	Market consistent	1,000	Yes
Generali	Market consistent	1,000	Yes
Hannover Re	Market consistent	1,000	Not disclosed
Legal & General	Real-world	Not disclosed	Not disclosed
Lloyds TSB	Market consistent	Not disclosed	Not disclosed
Mapfre	Market consistent	2,000	No
Munich Re	Market consistent	1,000	Yes
Prudential	Both	Not disclosed	Yes
SCOR	Market consistent	Not disclosed	Not disclosed
Standard Life	Market consistent	Not disclosed	Yes
Swiss Re	Market consistent	Not disclosed	Not disclosed
Talanx	Market consistent	1,000	Yes
ZIG	Market consistent	1,000	Yes
Other Companies			
Achmea	Market consistent	Not disclosed	Not disclosed
Baloise	Market consistent	1,000-5,000	Yes
Chesnara	Market consistent *	Not disclosed	Not disclosed
Mediolanum	Market consistent	1000	Not disclosed
Old Mutual	Market consistent	Not disclosed	Yes
Phoenix	Market consistent	Not disclosed	Yes
PZU	Market consistent	1000	Not disclosed
Resolution (Friends)	Market consistent	2000	No
Royal London	Market consistent	Not disclosed	Not disclosed
St James's Place	N/A **	N/A	N/A
Storebrand	Market consistent	1000	No
Swiss Life	Market consistent	2000	Yes
Uniqa	Market consistent	At least 1,000	No
Vienna	Market-consistent	Not disclosed	Yes

* Market consistent with approximations.
** St James's Place does not offer products that carry any significant financial guarantees or options.

DISCLOSURES

Individual differences in the interpretation and approach to embedded value reporting still remain, even where EEV Principles or MCEV Principles are adopted. Such disparities continue to present challenges for companies, investors, analysts and other interested parties alike in understanding disclosures and adjusting results to fairly evaluate and compare companies on a consistent basis. Naturally, this environment has put more emphasis on the additional information companies provide to help more clearly identify the dynamics of the business and the value-creation strengths of business models and strategies.

In certain areas, companies differ in the level of detail provided and this also presents challenges for market observers in carrying out in-depth comparisons between companies. On average, those companies producing stand-alone embedded value reports devoted approximately 33 pages to embedded value compared with an average of approximately 17 pages for those companies including embedded value in only their annual reports. Whilst this is a crude comparison, it is indicative of the different amount and granularity of information that companies publish.

The EEV and MCEV Principles prescribe the minimum disclosures regarding methodologies and presentation of results. The MCEV Principles specify the format of the results presentation in Appendix A (*Presentation of analysis of earnings*) and Appendix B (*Group MCEV analysis of earnings*). Appendix A specifies the breakdown of the analysis of movement in embedded value split by distinct components of value (free surplus, required capital and the value of in-force). Appendix B specifies that covered and non-covered business should be separately presented. The MCEV Principles indicate that the non-covered business should be based, as far as possible, on the unadjusted IFRS net asset values (in practice, however, various adjustments will be required to ensure consistency).

The majority of companies stating compliance with the MCEV Principles in our sample presented their analyses of change broadly in line with Appendix A. There were also a number of EEV-compliant companies that chose to present their results consistent with Appendix A and Appendix B.

Although not required under either EEV or MCEV Principles, an interesting insight into companies' performances can be gained if they disclose the economic variance divided into a) the effect brought about by experience being different to that assumed at the beginning of the previous reporting period, and b) the impact of changed economic assumptions used in the projections. This can aid understanding of the quality of the models used and whether positive or negative variances are due to events that have already occurred or are related to expectations about future market behaviour. At year-end 2013, only around a quarter of the companies included in this study disclosed economic variances divided into these separate components.

The EEV and MCEV Principles specify the minimum sensitivities that companies should disclose and this has helped to standardise disclosures across companies. The EEV and MCEV Principles also encourage companies to provide the results of additional sensitivities to help observers better understand the underlying dynamics of the company's business. Some companies continued to provide additional sensitivities surrounding the impact of the liquidity premium, which included removal of liquidity premium and a 10 bps increase to it.

The EEV and MCEV Principles specify the minimum sensitivities that companies should disclose and this has helped to standardise disclosures across companies.

Munich Re and Storebrand continued to include Solvency II yield curve sensitivities. Storebrand, as in 2012, included sensitivity to a change in the extrapolation of the risk-free curve in line with the LTGA. Munich Re introduced a new yield curve sensitivity which included using swap rates as the basis for risk-free rate structures, credit risk adjustment, volatility adjustment and extrapolation as per the latest Solvency II guidance. Few companies included additional sensitivities in respect to the CRNHR, but where this was done, consideration was given to the impact of increasing the charge for CRNHR or allowing for diversification benefits between hedgeable and non-hedgeable risks.

Analysts have commented that the drive towards greater consistency, through improved guidance and developments in embedded value reporting, has helped to improve their understanding of the inherent value and strengths within companies.

Analysts have commented that the drive towards greater consistency, through improved guidance and developments in embedded value reporting, has helped to improve their understanding of the inherent value and strengths within companies. The richness of disclosures has been particularly helpful as they allow market participants to compare and contrast the performance across firms. One particular difficulty, however, has been the need for continued evolution in guidance and approaches, which can result in expanding divergence between firms due to varying levels of firms' readiness and willingness to adopt new guidance. Over the coming year the necessity for further developments and guidance will be paramount as we move closer to finalisation of the Solvency II framework; no new guidance or press releases regarding embedded value reporting have been disclosed by the CFO Forum since the previous year-end.

An equivalent approach to calculating the embedded value is to use the 'balance sheet approach', where a comparison of the market value of assets with the market value of liabilities is carried out, instead of discounting the future releases of prudent reserving margins. The industry standard approach currently appears to be the discounted profits method. However, the balance sheet approach may become more relevant for comparison purposes when the Solvency II balance sheet comes in to force.

Embedded values continue to provide rating agencies with valuable information in their assessments of the creditworthiness of firms. The return on embedded value is a useful indication of the company's profitability. Furthermore, additional disclosures and the component nature with which the analysis is presented assist rating agencies in drilling down into the underlying key risk drivers and the areas of the company that are most important and/or where the ability to generate value is most at risk and thus the company's ultimate creditworthiness. Standard & Poor's states that return on embedded value is one of the factors considered in determining life insurers' ratings.

Overall, companies appear to have continued to take steps to align methodologies across their current (and expected) reporting metrics, as demonstrated by those companies choosing to apply broadly consistent treatments of liquidity premiums and risk-free extrapolation techniques under their embedded value and QIS5/LTGA calibrations. However, we expect this alignment to continue depending on the final basis which will be used under Solvency II.

OTHER MEASURES OF VALUE

In this final section, we discuss how the results from embedded values compare and contrast with other metrics used by parties such as investors or market analysts. In particular, we consider first how embedded value compares to market capitalisation and then how developments in both Solvency II and IFRS reporting may impact embedded value reporting going forward.

Market Capitalisation

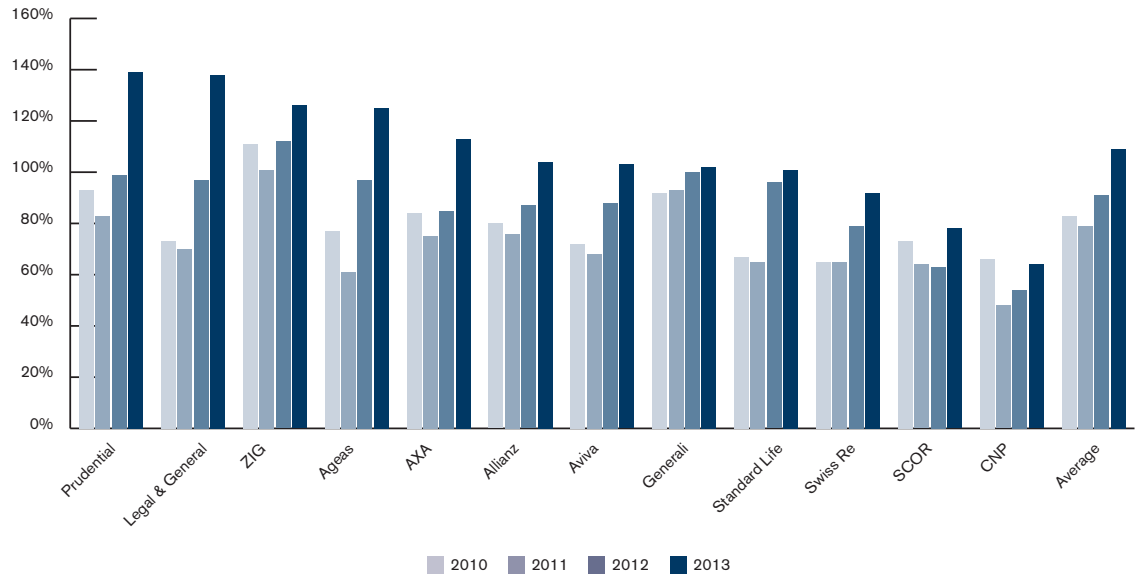
The acid test of embedded value has always been how much the market believes the result. One simplistic way of measuring this is to compare a company's market capitalisation to its embedded value at a given point in time. However, discrepancies in the embedded value and the market capitalisation can be due to a number of reasons whose impact may not always be entirely clear. For example, no allowance is made within a company's embedded value calculation for future new business sales or for intangible assets such as the loyalty of a customer base, which may be factors investors consider and hence should be reflected within the market capitalisation. This may suggest that, as long as these items are thought to create value, market capitalisation should exceed the reported embedded value. Another reason for discrepancies may be timing differences between the availability of embedded value and market data.

The strong performance of the insurance industry in the stock markets this year highlights the higher volatility of market capitalisation compared with a more stable embedded value measure. Also noteworthy is that the share price often reflects the potential for growth and future cash generation and may not put as much emphasis, as an embedded value measure, on the profitability of business already sold.

The strong performance of the insurance industry in the stock markets this year highlights the higher volatility of market capitalisation compared with a more stable embedded value measure.

Figure 12 shows the market capitalisation as a percentage of the embedded value for current CFO Forum members as at 31 December 2010 to 31 December 2013.

FIGURE 12: MARKET CAPITALISATION AS A PERCENTAGE OF EMBEDDED VALUE AS AT 31 DECEMBER 2013, 2012, 2011 AND 2010



Notes:

1. Excludes Lloyds Banking Group, Hannover Re, Talanx, Mapfre and Munich Re. A comparison of their embedded values to market capitalisation has not been included because their embedded values do not contain all the business within the group.
2. Market capitalisation has been sourced from Bloomberg for the last trading day of 2013, except for SCOR whose market capitalisation has been sourced from its annual report.
3. Ageas embedded value is the total of 'life' and 'non-life & other insurance.'

For the majority of companies, the market capitalisation exceeds the embedded value. Over 40% of companies in the analysis exhibited a ratio in excess of 110%. The weighted average ratio of market capitalisation to EV for these five companies (Prudential, Legal & General, ZIG, Ageas and AXA) increased by around 30% from the average level seen at year-end 2010 (126% from 92%). A further 40% of companies in the analysis now have a market capitalisation close to their embedded value. The average ratio for these companies (Allianz, Aviva, Generali, Standard Life and Swiss Re) showed a similar increase of about 20% in the 2013 year-end ratio compared with the average at year-end 2010 (101% from 78%). The remaining companies, SCOR and CNP, both exhibited increases on last year in the ratio of market capitalisation to EV, but remain very close to the average level they exhibited at year-end 2010.

In 2013, all companies' market capitalisations continued to grow, reflecting improved equity and debt markets. The average increase in market capitalisation for the CFO Forum members was 33%.

In 2013, all companies' market capitalisations continued to grow, reflecting improved equity and debt markets. The average increase in market capitalisation for the companies above was 33%. As might be expected, embedded values all grew over the year, albeit at a lower average rate of 10%. The greater increase in market capitalisations compared with embedded values may be a result of share prices reflecting future new business, intangible assets and goodwill, and other measures of future profit-generating capabilities. The latest market capitalisation figures may indicate greater analyst confidence in the insurance industry.

Analysts' views of the life insurance industry may be affected by a myriad of factors. In particular, over the coming year, the bedding-down of the RDR, the developments in the annuity market in the UK and the nearing of Solvency II implementation could have interesting effects on share prices.

Solvency II

Following adoption of the Omnibus II Directive by the European Trilogue parties in November 2013, the final form of and implementation timetable for, Solvency II are now much clearer. The Omnibus II Directive, which amends the Solvency II Directive to introduce elements of the Long-Term Guarantees package and to fix the Solvency II implementation date at 1 January 2016, was published in the Official Journal of the EU in May 2014 and hence is now legally binding. The adoption of the Omnibus II Directive paved the way for the development of the Level 2 Draft Delegated Acts, which have not yet been released publicly at the time of writing. Further guidance on the Long-Term Guarantees measures is, however, given as part of the TSPP which was published by EIOPA in April 2014.

The Matching Adjustment (MA) is applied as an increase to the Solvency II discount rate and aims to reduce artificial volatility created by spread movements in portfolios where assets are held to maturity. The MA is specified as the spread on eligible assets over and above a 'Fundamental Spread', the latter aiming to capture the element of the overall spread that can be attributed to default risk. Fundamental Spreads will be published quarterly by EIOPA.

The MA that forms part of the Long-Term Guarantees package is based on the 'Classic' MA as tested in the LTGA, with a few notable differences. In summary:

- The Fundamental Spread is now floored at 35% of the long-term average spread for corporate bonds and 30% of the long-term average spread for government bonds. These floors have been reduced from 75% in the LTGA.
- The MA can still only be applied where the cash flows provided by the assets are fixed and contain no issuer options. However, assets with 'make-whole' clauses, under which the borrower must make an additional payment on early redemption in order to indemnify the lender for the loss of future income, are now in scope.
- The requirement that eligible assets are rated BBB or higher has been removed, although the benefit that can be taken for assets rated below BBB cannot exceed that of similar investment-grade assets.

- There is no longer an explicit requirement for the asset and liability cash flows in an MA portfolio to be well matched, although the benefit gained from applying an MA is proportional to the level of cash flow matching in the MA portfolio.

A key requirement of the MA application that remains unchanged from the LTGA is that the MA portfolio must be ring-fenced from the rest of the business, with a resulting loss of diversification benefit in the Solvency Capital Requirement (SCR) calculation.

The Volatility Adjustment (VA) replaces the Counter-Cyclical Premium from the LTGA. Its purpose is to dampen the impact of short-term market volatility on portfolios other than those subject to the MA and is specified as an increase to the Solvency II discount rate. Unlike the MA, the VA is not determined based on the actual holdings of an insurer. Instead, EIOPA will calculate the VA based on reference portfolios representing typical asset mixes by currency and country. The VA will be calculated as 65% of the risk-adjusted spread on each reference portfolio, with additional allowance made when excess spreads in a particular country are significant.

Based on our study, companies haven't adopted these approaches (MA or VA) for their embedded value calculations and continued to use QIS5 methodology. A significant proportion of companies reported sensitivities with respect to the liquidity premium, while Munich Re published a Solvency II yield curve sensitivity which covered VA, Credit Risk Adjustment (CRA) and extrapolation of the yield curve in line with the latest Solvency II guidelines.

Based on our study, companies haven't adopted matching adjustment or volatility adjustment approaches for their embedded value calculations and continued to use QIS5 methodology.

The TSPP confirmed that the adjustment for credit risk, when determining the risk-free rate, should vary according to market conditions (with a cap at 35 bps and a floor at 10 bps). No company in this study took this into account in their embedded value methodology in 2013.

The parameters used to extrapolate the GBP risk-free curve to longer durations remain unchanged in the TSPP when compared to the LTGA Technical Specifications. The LLP remains at 50 years and the UFR remains at 4.2%. Two convergence speeds were tested in the LTGA, 40 years and 10 years. A convergence speed of 40 years has been used for the GBP risk-free curve in the current Technical Specifications. The same companies as last year continued to use LTGA extrapolation methodology, aligning their parameters with market practice – for example, Ageas changed the conversion parameter from 10 to 40 years.

In September 2013 EIOPA published guidelines on the requirements of the Solvency II Interim Measures which aim to ensure National Competent Authorities (i.e. regulators) and firms take active steps towards implementing certain key elements of Solvency II in a consistent and convergent way. The guidelines outline the phased introduction of the following elements of Solvency II from 1 January 2014:

- The System of Governance
- The Own Risk and Solvency Assessment (ORSA)
- Submission of information
- Internal Model pre-application

All firms are expected to produce two ORSAs during the preparatory period (referred to as 'Forward Looking Assessments of Own Risk' in the Interim Measures guidelines), one in 2014 and one in 2015. The majority of firms are also required to submit a set of quantitative Solvency II figures in Q2 2015 based on a valuation date of 31 December 2014. Firms should therefore be establishing processes to provide Solvency II balance sheet reporting during the remainder of 2014.

Companies and users of companies' accounts would ideally prefer Solvency II and embedded value reporting to converge as far as possible so that common assumptions and calculations can be used. However, it remains to be seen how achievable this will be, given that the two methodologies are intended to be used for different purposes and will ultimately depend on whether additional margins of prudence are imposed under the Solvency II regime.

The key areas where differences may apply are similar to those highlighted at the end of 2012 and include:

- Investment return assumptions and discount rates (e.g., MA/VA/liquidity premium, allowance for sovereign debt and extrapolation)
- Contract boundaries and consideration of what constitutes new business
- Market-related cost of capital versus the fixed Solvency II risk margin calculation

IFRS Developments

The preparation of accounts on an IFRS basis gives rise to a different interpretation and timing of profit and loss compared to the embedded values basis. This is fundamentally due to IFRS focusing on a current view of assets and liabilities together with current profit generation compared to embedded value, which also makes allowance for future earnings and the shareholder value created. Reconciliation of these different measures helps to reveal different features of firms' underlying performances. Consequently, companies reconcile their embedded value shareholder net worth to the IFRS net asset value. It is also worth noting that assets under embedded value are at market value whereas, under current IFRS reporting requirements, assets can be held at market value or amortised cost.

The IFRS 4 Phase II project aims at further standardising international accounting requirements for insurance contracts.

The IFRS 4 Phase II project aims at further standardising international accounting requirements for insurance contracts. The publication (in June 2013) of an Exposure Draft on reporting for insurance contracts by the International Accounting Standards Board (IASB) meant 2013 was a significant year for IFRS reporting. The Financial Accounting Standards Board (FASB) separately published a proposed Accounting Standards Update, Insurance Contracts (Topic 834), also in June 2013.

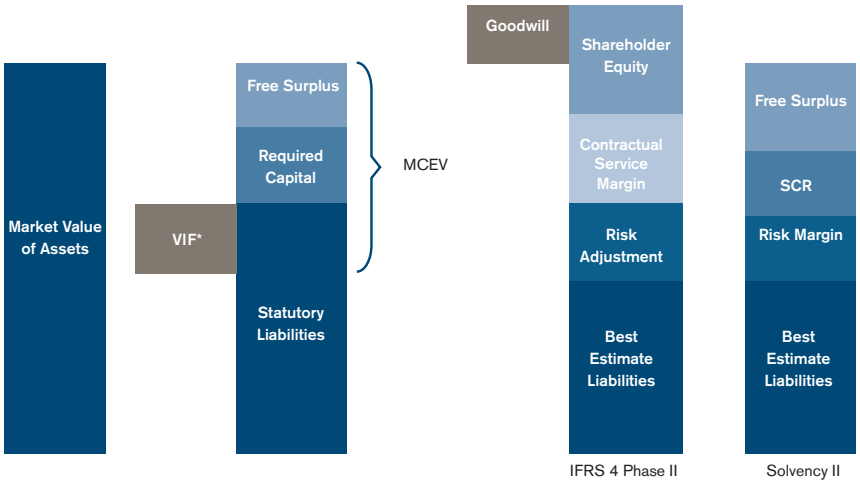
The IASB's Exposure Draft attracted a number of comment letters, with 194 respondents in total. The Exposure Draft is now closed for comments and similarly the FASB consultation period has ended.

In 2014, the IASB is in the process of considering the feedback received to date and has made a number of tentative decisions which demonstrate that they are treating the feedback seriously. There are still a number of areas awaiting IASB discussion before publication of a final standard, expected to be in 2015. Companies will then have three years before mandatory adoption of the standard.

In contrast, in light of the feedback received on the 2013 proposed update, the FASB decided to limit the scope to insurance entities as described in existing US GAAP. The FASB also decided that the project should focus on making targeted improvements to existing US GAAP. For short-duration contracts, the FASB decided to limit the targeted improvements to enhancing disclosures.

The proposed IFRS 4 Phase II balance sheet, based on the IASB Exposure Draft, is compared with MCEV and Solvency II in Figure 13.

FIGURE 13: COMPARISON OF MCEV AND PROPOSED IFRS PHASE II BALANCE SHEET



* VIF is PVFP less TVOG, CoC and CRNHR.
** Size of components under each reporting metric is for illustration only.

The IASB Exposure Draft highlighted a number of areas for consultation:

- **Treatment of participating contracts.** For contracts with contractual pass-through of investment experience, including unit-linked business, a mirroring approach was proposed to measure the participation feature and use the accounting value of the underlying asset to value the liability. There were many comments in response to this proposal, including the complexity resulting from the need to bifurcate cash flows. As at May 2014, the IASB has not reconsidered this issue.

- **Presentation of premium and claims in statement of comprehensive income.** The IASB has attempted to align the definition of revenue with other industries and, as such, revenue will no longer be directly aligned with premium information. The investment component is to be excluded from premiums and claims. The feedback on this proposal has been mixed. The IASB has tentatively decided to maintain the presentation proposed in the Exposure Draft, with additional disclosures.

- **Treatment of unearned profit in an insurance contract.** The contractual service residual margin (CSM) will be 'unlocked' and changes to the expected underlying cash flows can be reflected in changes in the residual customer service margin in the Other Comprehensive Income (OCI) component. The IASB has tentatively decided to confirm the proposed Exposure Draft approach and, additionally, changes in the risk margin related to future service are recognised in the periods the service is provided.

- **Approach to transition.** A full retrospective application of the building blocks is required, including both the risk margin and the residual margin. The IASB will reconsider the approach to transition when the standard is near-final.

- **Changes in discount rate.** The Exposure Draft required presentation of the effect of changes in the discount rate used to measure the insurance contract liability in OCI rather than in Profit and Loss (P&L). This generated a significant number of comments, with many insurers commenting that this approach created a potential accounting mismatch. The IASB has taken these concerns into account and has made the tentative decision to allow insurers the option of presenting the impact of change in discount rate in P&L.

Based on the feedback, the IASB has identified a number of additional areas it wishes to reconsider. These include the treatment of reinsurance – the proposed approach in the Exposure Draft considered the CSM on the direct written policies and the reinsurance contracts separately. This potentially created an accounting mismatch if the overall business was profitable, but the direct written contract was loss-making.

Over 2013, embedded value continued to be a viewed as an important metric to showcase firms' financial performance and their business strategies to investors, analysts and customers. Improvements in overall embedded value results were indicative of a more stable and optimistic market environment; however, the turbulent conditions from the Global Financial Crisis are still fresh in the minds of firms. Whilst the developments in embedded value reporting have not been as fast-paced as in previous years (due to the focus on preparations for IFRS reporting and Solvency II), firms have still looked to review and incorporate the materially stable aspects of these other reporting metrics. It is likely that 2014 will see more active developments in embedded value reporting as the suite of other reporting metrics are communicated to the market.

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