

2008 EEV/MCEV: COPING WITH EXTREME FINANCIAL CONDITIONS

EEV and MCEV reporting during 2008 has had to cope with severe falls in the values of equities and property and extreme conditions in the credit and certain derivative markets. In this *Update* we look at how the life assurance industry has responded to these challenges and suggest some approaches that may be justified in light of the dislocated market conditions.

The publication on 4 June 2008 of the *European Insurance CFO Forum Market Consistent Embedded Value Principles* ©¹ (MCEV Principles), described in our June 2008 *Update* 'CFO Forum Adopts MCEV', was quickly overshadowed by market developments, particularly following the collapse of Lehman Brothers in September. This led the CFO Forum to announce on 5 December 2008 that its members were addressing the notion of market-consistency under the current market dislocation. On 19 December 2008, the CFO Forum elaborated that the particular areas under consideration were implied option volatilities, the cost of non-hedgeable risks, the use of swap rates as a proxy for risk-free rates (the reference rate in MCEV Principles' terminology) and the effect of liquidity premia.

In light of this CFO Forum review, it is not surprising that only six companies published results using the MCEV Principles as at year-end 2008, all with some areas of non-compliance with the MCEV Principles and related guidance. Other companies reporting under the EEV Principles have generally retained the same broad methodology

for the allowance for risk as in 2007. However, within market-consistent EEV publications there have been some significant changes to the way the economic assumptions have been calibrated at year-end 2008 as compared with prior years. We look further at these in the section below entitled 'Market-related MCEV developments'.

Table 1 sets out the number of companies reporting under EEV and MCEV Principles as at end 2008 and prior year ends. A proportionate breakdown of the approach to allow for risk is provided for companies reporting under the EEV Principles. For a description of these approaches, the reader is referred to our May 2008

Update '2007 EEV: Stable Accounting in Volatile Markets'.

On 22 May 2009, the CFO Forum published a press release recognising that the "current financial crisis has revealed significant challenges for MCEV...which have ultimately harmed comparability" and disclosing "an agreement to do further work to improve the consistency in the adjustments made for liquidity premium and volatilities." The press release also announced that in light of these developments the mandatory date of MCEV Principles reporting for CFO Forum companies was being deferred from 2009 to 2011, and that a further update on this work would be provided later in 2009.

TABLE 1 SUMMARY OF APPROACH TO ALLOWING FOR RISK – COMPANIES REPORTING EEV/MCEV

	MCEV Principles	Reporting under the EEV Principles				
		Total	Total	Top-down	Indirect MCEV	Direct MCEV
End 2008 reporting	6	30	20%	17%	60%	3%
End 2007 reporting	N/A	34	20%	18%	56%	6%
End 2006 reporting	N/A	35	26%	17%	46%	11%
End 2005 reporting	N/A	21	33%	24%	24%	19%
End 2004 reporting	N/A	5	80%	20%	0%	0%

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Notes:

1. Includes both CFO Forum and non-CFO Forum companies publishing within normal reporting timescales.
2. A list of the 2008 EEV and MCEV publications is provided on page 7 with further details of the approach used.

MARKET-RELATED MCEV DEVELOPMENTS

We comment below on the issues raised by the CFO Forum in relation to the recent market turmoil. Our comments cover a description of the issues, as well as practice by companies in tackling these issues at year-end 2008. In describing market practice, we focus on the six companies adopting the MCEV Principles and the 23 companies publishing under the EEV Principles using a ‘market-consistent’ approach at year-end 2008.

We do not cover the subject of non-hedgeable risk as we understand the CFO Forum review in this area relates to the discretion permitted by the MCEV Principles; this issue was discussed in some depth in our June 2008 *Update*.

Implied option volatilities

Implied equity option and implied swaption volatilities increased dramatically during 2008. Much of these increases occurred following the collapse of Lehman Brothers in September 2008.

Fourteen companies reported 2008 year-end results based on implied volatilities observed at dates other than end December 2008, a significant change in practice from end 2007. Examples of the approaches used are set out in Table 2 below for CFO Forum companies. Reasons provided included a lack of deep and liquid options markets, unusual characteristics in the options markets, dislocated financial markets and a practical inability to calibrate to higher volatilities. Although MCEV Principle 15 requires the use of end period derivative prices wherever possible, MCEV guidance 15.3 refers to the first two of these reasons in enabling “less recently observed measures and expert opinion” to be considered.

MCEV Principle 12 states “Economic assumptions must be internally consistent...”. This could be interpreted as suggesting that any adjustments to the use of end period implied volatilities should be applied consistently to the valuation of both assets and liabilities. However, it appeared that no company calibrating to other than end December 2008 implied volatilities disclosed the revaluation of any similar assets away from market value.

Of the fourteen companies that calibrated to other than year-end 2008 implied volatilities in EEV/MCEV reporting, only one published a sensitivity highlighting the impact of calibrating to year-end 2008 market data. Several others provided verbal information indicating the level of sensitivity in response to analyst questions.

TABLE 2 SUMMARY OF ECONOMIC CALIBRATION APPROACHES – CFO FORUM MARKET-CONSISTENT PUBLICATIONS ONLY, YEAR END 2008 EV

Company	EEV or MCEV Principles	Calibration of implied equity option and swaption volatilities	Reference rates
Allianz	MCEV P	End September 2008	Swaps, unadjusted, except Korea where government yields were used
Aviva	MCEV P	End August 2008	Swaps, increased by 150bps for UK and NL immediate annuities, 300bps for US immediate annuities and 250bps for other US contracts, unadjusted for other businesses
AXA	EEV P	Average during 2008	Swaps, increased by 50bps for European businesses, and 100bps for most non-European businesses
CNP	MCEV P	Average during 2008	Swaps, increased by 70bps for all products
Fortis	EEV P	End December 2008	Swaps, increased by 50bps for European businesses, and 100bps for Hong Kong business
Generali	EEV P	End June 2008	Government yields for Italy and Czech Republic; Swaps increased by 50bps for most other European businesses; unadjusted for other businesses
Hannover Re	MCEV P	End November 2008 ¹	Swaps, unadjusted
Munich Re	EEV P	End December 2008	Swaps, unadjusted
Old Mutual	MCEV P	End September 2008 for US\$ swaptions only; end December 2008 for all other calibrations	Swaps, increased by 300bps for US onshore business, unadjusted for other businesses
Prudential	EEV P	Not applicable	MCEV approach used for UK annuities only: Reference rate set to gilts plus 252bp for fixed annuities and gilts plus 120bp for inflation-linked annuities.
Scottish Widows	EEV P	End December 2008	Reference rate set to gilts; for UK annuities set to gilts plus 154bp
Standard Life	EEV P	End December 2008	Reference rate set to 3.42% based on gilts; for UK annuities investment return set to 6.44%
Zurich	EEV P	Average during 2008	Swaps, unadjusted

Note 1: Disclosed that end November used for practical reasons and that this was similar to an end December calibration.

Use of swap rates as the reference rate

The reference rate is effectively the yield curve used to discount cash flows which are not affected by investment market movements. The MCEV Principles set the reference rate to be “the swap yield curve appropriate to the currency of the cash flows”. For a number of years up to the end of 2007 this yield had been modestly in excess of the equivalent government bond yield curve. However, at the end of 2008 the swap yield curve in many countries tended to be below the equivalent government bond curve for medium to long durations.

For those countries which have control of their own money supply, it is difficult to argue against using a government bond yield curve as a valid choice of reference rate where this market remains deep and liquid. Such countries can always print money to meet nominal liabilities expressed in their own currency, making the likelihood of default on nominal debt low. Given this, for such countries it seems appropriate for the reference rate to be set as either the swap or the government yield curve, whichever gives the higher MCEV.

It should be noted that neither government nor swap asset markets should be considered 100%-credit-risk-free; default in either market is possible if unlikely. However, in the context of valuing an insurance liability that is also not 100%-credit-risk-free, we consider both markets to generally be sufficiently credible as the basis for the reference rate.

For Eurozone countries, the position is not so clear cut. The absence of full control of monetary policy could cause a country to be forced to abandon the single currency. Indeed, spreads on some Eurozone government bonds indicate that the market is pricing in this possible event. However, as abandonment of the Euro by a country was never envisaged, there are no rules as to what would happen in these circumstances. It can be argued that local insurance

liabilities could be re-expressed in the new local currency, and revalued in line with the new exchange rate. This assumption would enable local government bond yields to also be considered for valuing local insurance liabilities in Eurozone countries.

Effect of asset illiquidity

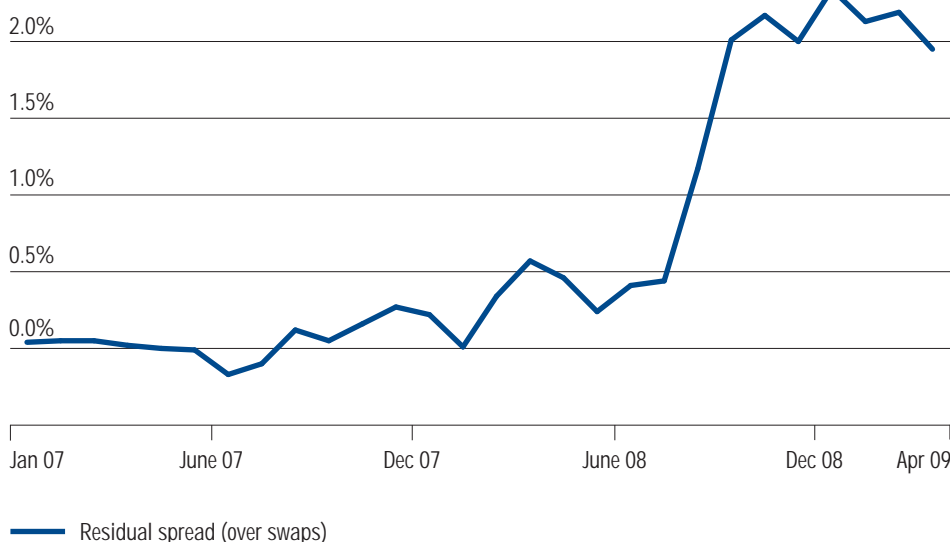
The MCEV Principles do not permit the reference rate to be increased to reflect the possibility of an illiquidity premium beyond that inherent in the swap yield. This strict interpretation came under pressure during 2008 as spreads on corporate bonds widened to historically high levels and swap spreads tightened significantly. In some markets, it is common for insurance companies to back their liabilities with corporate bonds in the expectation of earning sizeable investment spreads, some of which may be incorporated into the premium charged to the policyholder. For these companies, in end 2008 market conditions, not only MCEV reporting but their entire business model may be called into question if the rate of interest used to value the liabilities was restricted to a government bond or swap yield.

In response to this, a number of companies incorporated an illiquidity adjustment in setting the reference rate at end 2008.

Can the inclusion of an illiquidity adjustment be justified in a market-consistent valuation? If it can be included, can it be reliably measured? What levels can be observed in the current dislocated markets and in more benign financial markets?

One promising approach to answering these questions is one in which a corporate bond combined with a well-collateralised credit default swap (CDS) can be considered to reproduce a risk-free yield, at least for the term covered by the CDS. This combination is often referred to as a “negative basis trade”. It can be seen from an analysis of Eurozone market yields in Figure 1 below that the “residual spread” on this measure (compared with swap yields) was close to nil for most periods prior to the collapse of Lehman Brothers in September 2008 but by the end of 2008 had reached around 200bps at durations up to 10 years.

FIGURE 1
Eurozone residual spread (average up to 10 years)



Source: Towers Perrin analysis of Bloomberg and Markit data

The theory behind the use of a corporate bond and CDS-based illiquidity adjustment is based on the following assumptions which would limit its size and scope in practice.

- The full illiquidity premium is only available if the corporate bonds are already held. If this is not the case, then in illiquid markets the ability to purchase such assets is questionable. In addition, the associated costs of purchase could be considerable.

- The illiquidity yield premium should be restricted to the outstanding term of the corporate bonds or CDS protection, which may be less than the outstanding term of the liabilities.

- Any reinvestment or disinvestment risk should be allowed for. The insurer's ability to hold the investment portfolio to maturity should be assessed, taking into account the predictability of the insurance liability cash flows.

- Some mismatch risk is inevitably introduced by the use of credit default swaps to cover the credit risk inherent in corporate bonds. An additional allowance for residual risk should be considered.

We conclude that some allowance for additional illiquidity premia is justified in the current economic environment, but not in more benign financial markets. However, using the logic as described above, the size of this premium would depend on the actual assets backing the relevant liabilities. This feature is not easily reconciled with the concept of a market-consistent valuation of liabilities whose cash flows do not vary with the choice of backing asset portfolio.

Of the 29 companies publishing using a market-consistent approach, 13 companies applied adjustments to either government bond or swap yield curves.

Of the nine CFO Forum companies applying adjustments to either government bond or swap yield curves (see Table 2 on page 2), four companies referred to the residual spread observed in the corporate bond and CDS markets to explain the calibration of the adjustment. Two companies used government bond yields for certain countries where these exceeded swap yields.

ADDITIONAL DISCLOSURES

The embedded value supplementary information includes the balance sheet, the analysis of movement (also known as the profit and loss account), the value of new business (VNB) and the embedded value and VNB sensitivities. This set of information can help provide the basis for indicating the components of value, understanding a company's risk exposures, determining capital requirements, understanding capital flows and assessing risk-adjusted targets and performance. Users typically consider all these components when analysing results.

The MCEV Principles prescribe the format for presenting the analysis of movement tables in Appendices A and B of that document. Appendix A requires the splitting of the analysis of MCEV movement between free surplus, required capital and value of in force. Appendix B, the Group MCEV analysis, requires a combined analysis of covered business MCEV and non-covered business IFRS results to be shown. Table 3 below sets out whether the companies publishing under the MCEV Principles disclosed these tables.

Within the EEV and MCEV results and elsewhere in the year-end publications, a number of additional metrics were published, including:

- Several companies published Insurance Group Directive capital or equivalent information.

- Eight companies published an indication of the timing of the emergence of future statutory (regulatory) cash flows on which the value of in force business is based. One company published similar information for the value of new business.

TABLE 3 MOVEMENT ANALYSIS TABLES DISCLOSED WITHIN MCEV PRINCIPLES PUBLICATIONS

Company	Appendix A MCEV analysis of movement	Appendix B Group MCEV analysis of movement
Allianz	Yes	No
Aviva	Yes	Yes
CNP	Yes	No
Delta Lloyd	No	No
Hannover Re	Yes	No
Old Mutual	Yes	Yes

■ Twelve companies published metrics related to new business, including the internal rate of return (the discount rate which reproduces a zero VNB) and the payback period needed to repay initial new business strains.

Credit spread sensitivities

One disclosure development where some progress has been made is in the publication of credit spread sensitivities (notwithstanding that the MCEV Principles do not require the publication of credit spread sensitivities).

Of the 36 publications set out in the Appendix, seven companies published one or more credit spread sensitivities. This is in contrast to end 2007 where only one company published a credit spread sensitivity for all its covered business. Different companies applied different quantum for this sensitivity.

RELATED ACCOUNTING DEVELOPMENTS

The International Accounting Standards Board (IASB) has responded to the market crisis following political pressure. In May 2008, at the request of the Financial Stability Forum, the IASB established an Expert Advisory Panel to consider the application of fair value when markets became inactive. In October 2008, this Panel produced a report on how to measure and disclose the fair value of financial instruments in markets that are no longer active. The report, whilst not seeking to change IAS 39 *Financial Instruments: Recognition and Measurement*, emphasised that fair value in inactive markets should not be based solely on valuation date market prices and that in such circumstances a 'mark-to-model' approach was preferable. The IASB also at that time published proposed amendments to IFRS 7 *Financial Instruments: Disclosures*.

In April 2009, following pressure from the leaders of the Group of Twenty countries (G20), the US accounting regulator FASB also published guidance on calculating fair value which suggested the use of a mark-to-model approach when markets were no longer orderly. Furthermore, to meet concerns expressed by the G20, a comprehensive and urgent review of IAS 39 was announced in April 2009, with a view to implementing amendments by the end of 2009. The IASB's exposure draft on fair value measurement is expected to be published in May 2009. Amendments may include a relaxation of the rule within IAS 39 that the bid value of assets is used; it is noted that such a rule does not exist within the FASB definition of fair value.

Meanwhile, the IASB has resumed consideration of Phase 2 of its insurance accounting project. The Board tentatively decided at its February 2009 meeting that the margin at inception of a contract should be measured by reference to the premium and, therefore, no day one gains should be recognised in profit or loss. It has subsequently been tentatively decided that a deferred acquisition cost asset may be established covering incremental selling costs only. This use of such an 'entry value' methodology was almost inevitable after the Board issued on 19 December 2008 its Discussion Paper *Preliminary Views on Revenue Recognition in Contracts with Customers*. The Discussion Paper proposes a sales price, rather than an exit value, approach to valuing a contract. However, it is understood that the Board was narrowly divided on the issue and the final standard could change in the light of representations received – with obvious implications for insurance accounting under Phase 2.

The Solvency II directive, recently approved by the European Parliament and Council, is based on a market-consistent approach for the valuation of assets and liabilities. Specifically:

■ Assets are to be valued at the amount for which they could be exchanged between willing parties in an arm's length transaction.

■ Liabilities are to be valued at the amount for which they could be transferred, or settled, between knowledgeable willing parties in an arm's length transaction but ignoring any allowance for own credit standing. The exact interpretation of this prohibition on making allowance for own credit standing is still to be decided in the case of liabilities which are not technical provisions.

For technical provisions, the value is to be based on a replicating portfolio approach where this can be reliably assessed, but otherwise on a 'best estimate plus cost of capital' approach. The quantum and cost of capital to use for this purpose and the derivation of the risk-free interest rate for discounting purposes (including any allowance for illiquidity premia) are to be laid down in the Level 2 Implementing measures.

TOWERS PERRIN OPINION

The dislocation of the financial markets has raised challenges to MCEV, both in its implementation and application. There have been specific challenges around the use of the swap yield curve and implied volatilities at the valuation date, but more widely the whole concept of mark-to-market accounting has been questioned. This is perhaps not surprising with activity levels in certain markets having reduced significantly during 2008. We welcome the April 2009 IASB announcement to perform a comprehensive and urgent review of IAS 39 *Financial Instruments* and fair value accounting; this review will be relevant for both EEV and MCEV reporting and perhaps also Solvency II.

In our view, some of the weaknesses with the current mark-to-market approach for insurers are straightforward to amend and should be addressed soon. These include:

- A return towards a mid-market valuation of assets where assets are currently held to match long-term liabilities; and
- Subject to certain conditions, the use of a more flexible reference rate set to either government bond or swap yields, whichever gives the higher MCEV.

For other weaknesses, best practice techniques may take some time to emerge, leading to continuing inconsistency in the short term. The IASB review may lead to more developed views around the concepts of "orderly transactions" and "deep and liquid markets". This may trigger increased discretion on the design and use of mark-to-model approaches for the valuation of assets where market values do not represent an orderly transaction. Insurers may be able to apply such discretion in the market valuation of some asset classes with limited transactions such as corporate bonds, mortgage loans and certain derivative markets.

We believe it would help credibility if approaches observed during the recent reporting season to adjust the MCEV basis are reassessed in light of these asset valuation developments. Arguments to adjust assets or liabilities away from observed market prices should be based on evidence that orderly market prices would differ from observed market prices, and not on the unusual levels of observed market prices. In particular, evidence exists to suggest that certain derivative swaptions markets continue to function well; for such markets, the case for adjusting away from year-end implied volatilities for the MCEV is not so clear.

A lack of liquidity appears to be leading to inefficient markets. We believe that some additional illiquidity allowance for reasonably predictable liability cash flows is justifiable in an MCEV, to the extent it is not already reflected in the valuation and it reflects risks not faced by insurers. The corporate bond yield less cost of CDS approach is objective and helps to demonstrate that the swap yield curve was an appropriate risk-free rate prior to the current market dislocation. It remains an open question whether the allowance should relate to the assets actually held to cover the liabilities; in the current climate the ability to purchase such assets is questionable.

In the meantime, insurance companies are faced with the question of how to use the embedded value information to assess business strategies in light of the current market turmoil. Interpreting the in-force results depends in part on the extent to which the results are perceived to be driven by real asset liability mismatch risks and how this compares with companies' risk appetites and capital positions, and in part on views as to whether and how quickly financial markets may recover. New business strategies should take into account the reported VNB, supplemented by additional metrics such as IRR and payback periods, but also views on whether pricing markets are likely to harden in the coming years.

APPENDIX: 2008 EEV AND MCEV PRINCIPLES PUBLICATIONS

Company	Allowance for risk classification ¹	RDR approach	Options and guarantees ¹	Cost of capital ²
Year-end 2008 publications under the MCEV Principles				
Allianz	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Aviva	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
CNP	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Delta Lloyd	Market-consistent	Bottom-up	Not disclosed	Not disclosed
Hannover Re	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Old Mutual	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Year-end 2008 publications under the EEV Principles				
Aegon	Top-down WACC	Top-down	Real-world	Traditional
Allianza	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
AXA	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Chesnara	Indirect market-consistent	Bottom-up	Market-consistent	Traditional
Danica	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Eureko	Top-down WACC	Top-down	Both are used	Traditional
Fortis	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Friends Provident	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Generali	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Groupama	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Hansard Global	Direct market-consistent	Bottom-up	Not material	Frictional costs
IL&P	Indirect market-consistent	Bottom-up	Market-consistent	Traditional
ING ³	Top-down WACC	Top-down	Real-world	Traditional
Just Retirement	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
KBC	Direct market-consistent	Bottom-up	Market-consistent	Not disclosed
Legal & General	Top-down WACC	Top-down	Real-world	Traditional
Mediolanum	Indirect market-consistent	Bottom-up	Market-consistent	Frictional costs
Munich Re	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Prudential ⁴	Other	Bottom-up	Both are used	Traditional
Royal London	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
SCOR	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Scottish Widows	Direct market-consistent	Bottom-up	Market-consistent	Not disclosed
SJP	Indirect market-consistent	Bottom-up	Not material	Not disclosed
SNS Reaal	Top-down WACC	Top-down	Real-world	Not disclosed
Standard Life ⁵	Indirect market-consistent	Bottom-up	Market-consistent	Traditional
Storebrand	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
T&D Holdings ⁶	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Vienna Insurance	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs
Vital	Top-down WACC	Top-down	Real-world	Traditional
Zurich	Direct market-consistent	Bottom-up	Market-consistent	Frictional costs

Notes:

1. At year-end 2008 a number of different 'market-consistent' approaches were used in EEV and MCEV to set the reference rate, to adjust for illiquidity, and to set the implied volatility assumption in the valuation of options and guarantees. For a summary of CFO Forum company approaches see Table 2 on page 2.
2. Traditional cost per unit capital is the difference between the top-down RDR and the net earned rate. Frictional costs were almost always defined as tax and investment expenses.
3. ING changed the approach to the allowance for risk at end 2008 to using a WACC approach. At end 2007 the top-down RDR margin was set to be in line with peers.
4. Prudential used a bottom-up product specific beta approach, except for UK annuities where it used an Indirect MCEV approach with a risk-free rate of gilts plus a liquidity premium adjustment.
5. Standard Life used an indirect MCEV approach which separately calibrated the allowance for risk by in-force business / new business and by region.
6. T&D Holdings' financial year end is 31 March 2009.

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