Financing embedded value

Embedded value figures have been used by life insurance companies for external reporting or internal management purposes for many years. However, Walter Schulte-Herbrüggen, Luise Hölscher, Perham Harding and Gernot Becker argue that there's great potential for embedded value to be used as a financing tool

For life insurers, embedded value figures have been an important concept in external reporting and internal value management for many years. The embedded value of a life insurance company represents the value to its shareholders of a portfolio of written life insurance policies. Although the various calculation methodologies are far from consistent, new ways to use the information presented by life insurers are already emerging. In the authors' view, there is enormous potential for the life insurance industry to increase capital efficiency and profitability by adapting securitisation and other financial technologies to its needs. In this article, we give an overview of the benefits to life insurers, the financing model and the risks lenders have to deal with.

Embedded value in financial reporting

Embedded value is the present value of profits minus expenses for a life insurance company on a fixed block of insurance policies. Therefore, it excludes the new business potential of the life insurer.[1] Risks are valued on an expected loss basis, based on the average expected materialisation of the underlying business risks of the life insurance pool.

With the advent of a new accounting paradigm in merger accounting – principally Statement of Financial Accounting Standards (SFAS) 141/142 and International Financial Reporting Standard (IFRS) 3 – embedded value figures have to be included in consolidated accounts as of 2002 and 2005, respectively, specifically when the acquisition of a life insurance company is to be recorded.[2] The European market leaders, Axa and Allianz, have already included embedded value components in their 2004 annual accounts, of €2.8 billion and €2.7 billion, respectively.

Also, the International Accounting Standards Board (IASB) plans to introduce mark-to-market accounting for insurance contracts by 2008 (phase II of the Insurance Contract Project), which will require the use of present value techniques. Furthermore, in May 2004, the Forum of the Chief Financial Officers of the 19 largest insurance groups in Europe published the European Embedded Value (EEV) Principles, with a view to making embedded value disclosures more meaningful and more comparable across companies.[3] Insurance consultants are also proposing market-consistent embedded value models as a basis for internal shareholder value management. Here, in a step beyond the EEV Principles, the emphasis is on calculating arbitrage-free market calibrated embedded values.[4]

Besides the benefits to shareholders in external reporting or to management for internal purposes, these advances provide an increasingly reliable basis for lenders to finance blocks of life insurance.

Optimising capital requirements

Similar to securitisation in other insurance segments, the basic idea is to carve out a block of insurance policies from the insurer's portfolio and transfer it to a special-purpose reinsurer. Embedded value financing principally consists of selling the future profit stream of the insurance policies without recourse, and therefore converting the embedded value immediately into cash. From a life insurer's point of view, embedded value financing is a form of financial reinsurance that deals with both the underwriting risk and the timing risk.

Underwriting risk is the risk that actual claims will deviate from expected claims. In embedded value financing, it is transferred from the life insurer by segregating the insurance risk of a block of policies from the life insurer's portfolio and transferring it to the special-purpose reinsurer without recourse to the life insurer.

Timing (or liquidity) risk refers to the uncertainty over when claims must be paid out or when payments from a reinsurer for the reinsured underwriting risks are actually received. By transferring the insurance risk from a block of insurance policies to the special-purpose reinsurer with associated financing, the life insurer also eliminates timing risk once it has received the proceeds. The risks now have to be dealt with by the special-purpose entity and its financing providers.

The principal benefits of embedded value financing for a life insurer can be to:

- free equity capital;
- enhance profitability by reducing the cost of capital to hold;
- tap new financing sources; and
- manage the release of cash and the recognition of earnings.

Once the risk is effectively transferred to the special-purpose reinsurer in a structure satisfactory to the relevant regulators, the life insurer no longer needs capital for the insured risks. It can redeploy the freed capital for underwriting more profitable new business or return it to shareholders (or, in the case of a mutual company, to its members). In either case, the capital requirement for existing risks is reduced and therefore also the cost of holding it. This increases the profitability to shareholders.

The need for this is enhanced by increasing competitive pressures and the forthcoming introduction of new, and in many cases more severe, capital rules, such as Solvency II. Also, under the Consolidated Life Directive and the UK Integrated Prudential Sourcebook, the embedded value cannot be taken into account for regulatory purposes after De-

[1] *Inclusion of new business potential in the calculation yields the so-called appraisal value*
[2] *This is further extended under the recently issued joint proposal of the Financial Accounting Standards Board and the International Accounting Standards Board to improve the accounting of business combinations. In contrast to the present rule, for example, under IFRS, where intangible assets are to be recognised separately from goodwill, when they meet the definition of an intangible asset under IAS 38 and can be reliably measured, the latter condition will be dropped as of fiscal 2007. See International Accounting Standards Board (2005), para 40 and para A49 (d)*
[3] *See CFO Forum (2004)*
[4] *See O'Keeffe et al (2005), pages 18–20 and 44–61*
[5] *See Rudin (2005), page 43*
[6] *See Mercer Oliver Wyman (2004), pages 14–15*
[7] *For recognition as underwriting result for the originator under IFRS the deal must meet the definition of an insurance contract under IFRS 4. IFRS 4.37 (b) (i), however, requires disclosure in the notes. See International Accounting Standards Board (2004)*
[8] *See Cummins (2004), pages 22–25*

cember 31, 2009, which also makes embedded value financing more interesting.[5]

The release of capital may be of particular significance in certain circumstances – for example, as part of a demutualisation process. Due to the low equity base of many German life insurers compared with those in other countries, there is potential for embedded value financing in Germany and Sweden. This is mainly due to the comparatively high level of guarantees and high degrees of equity investment. Additionally, the German market is highly fragmented, entailing higher business risk.[6] In particular, the legal or stipulated minimum yield to policy-holders may cause a drain on their capital once Solvency II is introduced, since this contains significant risk to the insurer but is mostly not yet accounted for in statutory capital requirements. Under Solvency II, the more guarantees granted to the policy-holders, the higher the risk and the economic capital needed for the life insurer.

Besides the risk management perspective, embedded value financing may be an appropriate financing tool for an investor acquiring a life insurance company or later refinancing a prior acquisition.

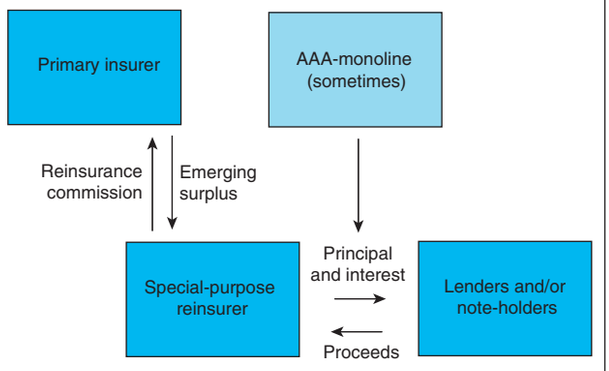
Furthermore, embedded value financing will reduce earnings volatility once phase II of the Insurance Contract Project is introduced, with its present value accounting approach. With embedded value financing, the life insurer discards these volatility risks. It will also increase reported profit for the originating life insurer in the year the transaction is completed by the cash amount returned as commission paid from the special-purpose reinsurer. As there is effective risk transfer in an embedded value transaction, recognition as technical income seems acceptable from a supervisory and accounting perspective.[7] Embedded value financing therefore helps to stabilise earnings over time. Introduction of IFRS for listed insurers from 2005 will make this type of transaction more interesting in countries such as Austria, France, Germany, Switzerland and the UK, where, under national accounting rules, fluctuation reserves have been or still are permitted. Fluctuation or equalisation reserves are constituted in good years for bad years to account for changes in loss rates due to loss volatility. Therefore, they offer the potential for substantial earnings stabilisation, which is no longer permissible under IFRS 4 because of the prohibiting of fluctuation reserves. As such, embedded value financing can fill a gap for listed insurance groups.

Consequently, embedded value financing is expected to be increasingly used as a method of balance-sheet management by insurance groups. Like the securitisation of other insurance policies, a more frequent recourse to embedded value financing represents on the part of the life insurer a shift in business model from a traditional financial intermediary to a risk warehousing role.[8]

Financing model

The first deal of this kind was conducted in April 1998 for UK mutual company National Provident Institution (NPI). After a pause of five years, the Gracechurch Life Finance transaction followed in 2003, which securitised the embedded value in a block of insurance policies originated by

1. Basic structure of an embedded value transaction



A. Some past deals

Gracechurch Life Finance

Transaction summary	Securitisation of the future surplus emerging from a closed block of unitised life and pensions policies sold through Woolwich Life Assurance and Barclays Life. The two insurers were combined into one unit and refinanced by an embedded value transaction.
Objectives	☐ Combine the business units to improve operational efficiency ☐ Transfer risk on future insurance profits to investors ☐ Create a more efficient capital structure ☐ Reduce the effect on Barclays Life's balance sheet of its subsidiaries' run-off of business
Completion	☐ November 2003
Funding	☐ £400m floating rate notes due 2013 issued by SPV Gracechurch Life Finance ☐ FRN rated AAA due to credit enhancement by Ambac Assurance UK (underlying rating: A–) ☐ £350m subordinated loan from Barclays Bank

Box Hill Life Finance

Transaction summary	Securitisation of the future surplus from a defined book of policies written by Friends Provident Life & Pensions
Objectives	☐ Improve the quality of solvency capital held by FPLP by increasing tier-one capital by the full amount of £380m ☐ Increase financial flexibility to fund new business growth
Completion	☐ December 2004
Funding	☐ Funding volume: £380m FRNs, of which £280m due 2016 and £100m due 2019 ☐ Rating: AAA due to credit enhancement by Ambac Assurance UK (underlying rating: A–)

Queensgate Special Purpose

Transaction summary	Securitisation of future profits emerging from five blocks of traditional and interest-sensitive life insurance policies originated in the US and acquired by Admin Re, a subsidiary of Swiss Re.
Objectives	☐ Increase capital efficiency through the issue of insurance-linked securities ☐ Transfer risk (principally mortality, lapse, asset quality and reinvestment) to investors
Completion	☐ January 2005
Funding	☐ $245m fixed rate notes due 2024, in three series, A, B and C with expected maturities of six, nine and 11 years respectively, issued by SPV Queensgate Special Purpose (a Bermuda company). ☐ Rating: senior notes rated A+, A1 by S&P and Moody's, respectively

B. The risk structure of embedded value financing

Credit risk resulting from the underlying insurance business risks
- ☐ mortality risk
- ☐ longevity risk
- ☐ investment return risk
- ☐ surrender risk (including cyclical risks)
- ☐ risks arising from financial options and guarantees
- ☐ expense inflation risk
- ☐ liquidity risk
- ☐ other risks

Counterparty risk to originator
- ☐ operating risk
- ☐ reputation risk
- ☐ counterparty risk from representations and warranties

Risk mitigation
- ☐ tranching
- ☐ credit enhancement by a monoline

Barclays Life.[9] Since then, several issues have come to the market. While some deals have been done (and much research carried out) in the US,[10] the UK market seems to be most vibrant at present.

In embedded value financing, typically future premiums and the related expenses and risks are transferred from the life insurer to a special-purpose vehicle, which has a reinsurance licence. The related assets and liabilities are also transferred. The special-purpose vehicle then raises the finance through a combination of equity and debt, either by borrowing or by issuing securities. The finance is paid back during the run-off of the underlying portfolio. The administration of the policies typically remains with the originating life insurer, but may be transferred to a specialist servicer.

Often, the financing is tranched into a first-loss or subordinate tranche and one or more senior tranches. Investors in subordinate tranches are often investment funds or hedge funds. In the Gracechurch deal, subordinated finance was provided by Barclays Bank, which also arranged the transaction. The Gracechurch deal also included credit enhancement from a monoline insurance company. In the very infancy of this market, credit wrapping has increased market confidence, especially of the investors in the senior tranche. With growing experience in modelling the associated risks for the investors and the generally declining spread environment, it can be assumed that more deals will emerge without credit enhancement. In the past, the senior tranche of most deals has been in the A to A– range without credit enhancement (see table A).

Maturities in most deals range beyond 10 years for senior tranches, albeit with an average maturity sometimes as low as two to three years. Generally, first-loss tranches are only repaid when senior tranches are fully reimbursed.

Lenders' risks

Lenders rely on future surpluses for repayment. Their security is based on the margin of surplus over principal and interest payments. All else being equal, the higher the coverage ratio (in other words, the surplus over the capital service), the lower the lenders' risk. However, this relationship is not in itself an adequate risk measure: the investor needs more explicit recognition of the actual risks residing in the insurance risks transferred.

As mentioned, it is expected that in future, more deals will be offered without credit wrapping. Therefore, the following section discusses the lenders' risks from a stand-alone perspective.[11] Table B gives an overview of the principal risk categories.

Given the non-recourse nature of the deal structure, the counterparty risk to the originator is less relevant than the insurance business risks underlying the transferred block of insurance policies. These are, however, subject to mitigation.

Mortality risk is the risk that more insured events (such as death) occur before the maturity of the policies than was expected under the embedded value calculation assumptions. In contrast to this, longevity risk concerns payouts in later years, which are comparatively less relevant in the early stage of the deal due to the heavier discounting impact of later flows. Longevity risk is the risk that contractual annuity payments may have to be paid over a longer period than anticipated, therefore reducing the surplus.

Investment return risks result from fluctuation in capital markets, such as decreasing stock prices, increasing or decreasing interest rates or rising credit spreads, and therefore depressed bond prices as well as default risks.

Another major risk is the surrender or persistency risk. It concerns premature surrenders of policies by policy-holders, prompting pay-outs before scheduled maturities and diminishing the profit base of future years.

While a certain amount of surrenders is usually integrated into the embedded value calculation based on expected (for example, past) lapse ratios. Surrender risk also has significant correlations with investment return risks and cyclical risks (for example, when policy-holders surrender more due to unemployment).

Another risk source with potentially major implications arises from built-in financial guarantees and options. It is highly related to capital market risks and surrender risk. The higher the rates of return guaranteed to the policy-holders and the smaller the difference to current yield levels, the smaller the surplus or the greater the deficit to the special-purpose reinsurer.

Furthermore, administration expenses may exceed budgeted forecasts, and therefore undermine the embedded value to be financed. Unanticipated increases in expenses derive from one-time cost increases, such as new computer systems or increased regulatory burdens. This is likely to occur with the introduction of IFRS for listed insurers in Europe and in the wake of Solvency II, but may also derive from increasing reporting requirements to state authorities (for instance, for fiscal reasons).

But there may also be changes in secular expense cost trends. Since the administration of the policies is typically still done by the originator, the methodology of cost allocation to the special-purpose reinsurer and the cost clauses in the contractual agreement between the special-purpose vehicle and the insurer/ administrator will have an impact on lenders, not only on the embedded value itself but also on the riskiness of lenders' exposure over time.

Liquidity risk arises if at some later point of time inadequate or insufficient liquidity is available to meet obligations as they fall due. While at the beginning of the financing it is quite straightforward to provide for sufficient liquidity reserves to meet debt service, matching assets and liabilities may become a problem as a consequence of the materialisation of other risk drivers, such as lower investment returns or higher payouts for surrenders or mortality.

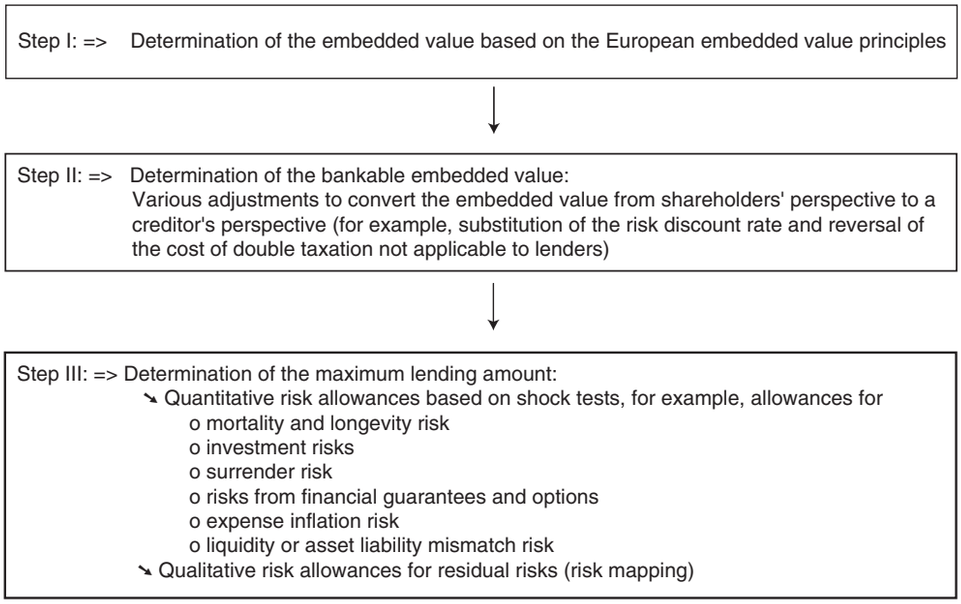
Other risks may arise depending on the specific pool to be refinanced. A risk not to be neglected in carving out a certain pool from the originator's business is concentration risk – the risk that the policies transferred are too homogeneous with regard to type or to the underlying insured risk drivers, such as age, sex, profession or location, potentially leading to risk accumulation. The same applies to the diversification of the capital investments supporting the respective block of life insurance policies.

As the block of insurance policies is transferred without recourse from the originator to the special-purpose reinsurer, the lenders do not have a default risk to the originator. However, the following risks to the life insurer remain:
- ☐ operating risk
- ☐ reputation risk
- ☐ credit risk arising from representations and warranties.

As the originator remains responsible for the administration of the block of policies financed, operating risks will affect the profit and loss account of the special-

[9] *See Rudin (2005), page 43*
[10] *See, for example, Cummins (2004), pages 27–39*
[11] *See Hölscher, Harding & Becker (2005), pages 43–44*
[12] *For details, see Hölscher, Harding & Becker (2005), pages 31–65*
[13] *See Hölscher/Harding/Becker (2005), pages 13–31*

2. Converting the EEV to the maximum lending amount



purpose reinsurer, and therefore the risk of the lenders. These are the typical risks arising from human or technological error as well as fraud.

Reputation risk arises when the credit standing of the originator declines or suffers a loss of confidence in the market resulting in increased lapse rates and possibly additional administrative costs and uncertainty. Nevertheless, the negative impact of this on new business will hurt the segregated block of policies less, as these policy-holders are mostly not affected. Often, back-up servicing arrangements would be put in place to ensure continued administration of the policies in force.

Typically, in embedded value structures, the originator makes representations and warranties referring to the legal existence of the policies and its liability for eventual mis-selling. To the extent that such representations and warranties are given, a counterparty risk to the originating life insurer arises.

The risk exposure of the lenders is, however, mitigated by any reinsurance and by the degree of subordination, structural or financial, from which each class of lenders benefits. First-loss tranches of 50–60% have not been uncommon so far in the market, even for credit-enhanced deals (see table A).

Maximum lending amount

The critical question for lenders is the percentage of the embedded value that is financed given their individual risk appetite. This question is also paramount for the originator, which wants to release the maximum cash to the benefit of its shareholders.

The ideal approach would be to create a statistical model to determine the embedded value after deduction of an embedded value-at-risk figure for a predetermined confidence level, for instance 99.9% (corresponding approximately to an A– rating). However, the methodology for this is not yet sufficiently developed to provide reliable figures comprising all relevant types of risk as well as the correlations between them. Therefore, a model was designed based on shock tests taking the EEV Principles as their point of departure (see figure 2).

In a first step, the EEV is to be determined. In a second step, it has to be adapted from the shareholders' perspective to the lenders' perspective. This requires:

☐ substitution of the risk discount rate by the lenders' interest rate for the relevant maturity plus an appropriate risk margin; and

☐ elimination of tax effects that may be relevant to shareholders, but not to creditors. This results in the so-called bankable embedded value, which, however, is still based on average risk expectations. This figure is then transformed in the third step into the maximum lending amount by:

☐ deducting shock amounts derived from the application of shock tests for quantifiable risks; and

☐ making a cumulative deduction based on a risk-mapping method for the unquantifiable residual risks.

The methodology is quite flexible. It decomposes the valuation problem into separable issues that are amenable to further analysis.[13] ■

Walter Schulte-Herbrüggen is general manager and head of the financial institutions and international public finance division at Landesbank Hessen-Thüringen Girozentrale, Frankfurt (email: Walter.Schulte-Herbrueggen@ helaba.de). Professor Doctor Luise Hölscher is professor of accounting and taxation at HfB – Business School of Finance and Management, Frankfurt (email: Hoelscher@hfb.de). Perham Harding is head of insurance, UK and US, financial institutions and international public finance division at Landesbank Hessen-Thüringen Girozentrale, London (email: Perham.Harding@helaba.de). Gernot Becker is head of product development and methodology in same division, Frankfurt and assistant professor at HfB – Business School of Finance and Management, Frankfurt (email: Gernot.Becker@helaba.de)

References

CFO Forum, 2004
European embedded value principles and basis for conclusions
Available at *cfoforum.nl/eev.html#EEV*

Cox S, J Fairchild and H Pedersen, 2000
The economics of insurance securitizations
Contingencies, Sep/Oct, pages 48–56

Cummins J, 2004
Securitization of life insurance assets and liabilities
TIAA-CREF Institute, available at *fic.wharton.upenn.edu/fic/papers/04/0403.pdf*

Hölscher L, P Harding and G Becker, 2004
Financing the embedded value of life insurance portfolios
HfB – Business School of Finance and Management, HfB Working Papers Series number 64, available at *www.hfb.de/Navigator/Professoren_Forschung/Publikationen/Arbeitberichte/Show*

International Accounting Standards Board, 2004
International financial reporting standard 4
Promulgated March 30, 2004

International Accounting Standards Board, 2005
Exposure draft of proposed amendments to IFRS 3 Business Combinations
Available at *www.iasb.org/current/ed.asp*

Mercer Oliver Wyman, 2004
Life at the end of the tunnel? The capital crisis in the European life sector
February

O'Keeffe P, A Desai, K Foroughi, G Hibbett, A Maxwell, A Sharp, N Taverner, M Ward and F Willis, 2005
Current developments in embedded value reporting
Presented to the Institute of Actuaries, February 28, available at *www.actuaries.org.uk/files/pdf/sessional/sm20050228.pdf*

Rudin S, 2005
Insurers race to realize hidden value
International Financial Law Review, March, pages 43–45