

REPORT

ON

**DETERMINATION OF A YIELD CURVE FOR USE
IN DISCOUNTING INSURANCE LIABILITIES**

PREPARED BY

**THE TASK FORCE APPOINTED BY THE ACCOUNTING
COMMITTEE FOR INSURANCE OF
THE DANISH FINANCIAL SUPERVISORY AUTHORITY**

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1. Introduction

1.1. Task Force terms of reference and composition

As part of the work performed in the spring of 2004 to prepare a set of IAS compatible accounting rules for insurance companies, the Accounting Committee for Insurance of the Danish Financial Supervisory Authority appointed a Task Force, commissioned to prepare detailed rules for a yield curve to be incorporated into the accounting rules for use in discounting insurance liabilities.

The Task Force was given the following terms of reference:

“To consider the principles to be included in a Danish IAS compatible set of accounting rules for determining discount rates to be used in the measurement of insurance and pension liabilities.

To make recommendations, based on these principles, for rules for estimation of a yield curve to be used by Danish insurance companies and pension funds in the measurement of their insurance and pension liabilities. The rules should be prepared so as to ensure, in so far as possible, that similar liabilities are measured at the same value in different companies. To that end, the Task Force is to consider current rules of significance to the choice of discount rate in the measurement of insurance and pension liabilities. As part of this assignment, the Task Force is to make recommendations for rules to replace the current guidelines on discount rates of 20 December 2001.

The Task Force will be chaired by Flemming Petersen, Adviser, and will be comprised of representatives from the Danish Insurance Association (4 members), the Danish Institute of State Authorised Public Accountants (1 member), the Danish Society of Actuaries (1 member), ATP (the Danish Labour Market Supplementary Pension Fund) (1 member) and the Danish Financial Supervisory Authority, which will also be in charge of running the secretariat.

The Task Force report is to be submitted to the Accounting Committee for Insurance by 14 June 2004.”

The composition of the Task Force:

From the Danish Financial Supervisory Authority:

Flemming Petersen, Adviser (Chairman)
 Michael Harboe-Jørgensen, Financial Inspector
 Heidi Jensen, Special Adviser
 Helle Gade, Financial Inspector

From the Danish Insurance Association:

Hasse Jørgensen, Securities Director (PFA Pension)
 Jan-Ole Hansen, Finance Director (Industriens Pension)
 Kim Johansen, Mathematical Director (Codan)
 Peter Skjødt, Head of Department (the Danish Insurance Association)

From the Danish Society of Actuaries:

Frank Cederbye, Mathematical Director (SAMPENSION)

From the Danish Institute of State Authorised Public Accountants:

Jesper Otto Edelbo, State Authorised Public Accountant

From ATP (the Danish Labour Market Supplementary Pension Fund):

Chresten Dengsøe, Mathematical Director

From the Danish Ministry of Economic and Business Affairs (Observer):

Torben Mark Pedersen, Specialist Consultant

Pernille Dalby Nielsen, Deputy Financial Inspector, has acted as secretary to the Committee.

The Task Force has held three meetings and is pleased to submit its report to the Accounting Committee.

1.2. Premise of the Task Force work

As already mentioned, the premise of the work of the Task Force has been the thorough review of the accounting rules applicable to financial institutions, launched at the beginning of 2004, which aims to ensure that Danish accounting rules for financial institutions will be in compliance with IAS/IFRS.

Prior to, and independently of, the start of the work on the new accounting rules, the Danish Financial Supervisory Authority was approached by letter by the Danish Insurance Association (in December 2003). The Association proposed that specific rules be established for a yield curve to be used by life insurance companies and industry-wide pension funds choosing to discount their liabilities using a yield curve rather than a flat interest rate (rules were already in place for discounting using a flat rate).

In its letter to the Financial Supervisory Authority, the Danish Insurance Association noted that there was increasing interest on the part of life insurance companies and pension funds in using a yield curve. The Association pointed out that under existing rules life insurance companies and pension funds may obtain different estimates for the discount rate used. The Danish Insurance Association expressed the view that it was neither fair nor appropriate that different company-specific estimates of the expected market rate could lead to differences in the calculated value of liabilities. To resolve this issue, the letter from the Danish Insurance Association put forward a proposal for establishing a yield curve to be used by all life insurance companies and pension funds in the calculations of their liabilities.

2. Current rules

2.1. Current rules on discount rates to be used by life insurance companies – and the rationale for these rules

The Market Value Committee prepared the current rules for valuation of life insurance liabilities. The Committee reached the conclusion that in fair value accounting, valuation of life insurance liabilities should be based on discounting at a market rate independent of the assets in which the individual company had invested. The market rate applied should be a rate corresponding, in terms of maturity and currency, to the maturity and currency of the liabilities. In other words, the rate was to be based, in principle, on a yield curve, so as to ensure that in the discounting of individual payments of future cash flows made to settle liabilities, the rate used was equal to the point (maturity) on the market yield curve that was equal, at the time of calculation, to the time period until the payment date for the payment in question.

At the time of the introduction of the new fair value accounting rules, life insurance companies and pension funds were not, however, immediately prepared to apply a maturity-dependent discount rate, nor were they able to do so in practice. Under the rules in force at the time, life insurance companies and pension funds had been using discount rates that were independent of the maturity of liabilities.

Against this background, it was made optional for life insurance companies and pension funds to decide whether to use a single rate (flat rate) or a maturity-dependent rate (yield curve) in the calculation of their liabilities.

The executive order on accounting implementing the new fair value rules stipulated that in the valuation at fair value of guaranteed benefits, “the rate used should provide an estimate of the return obtainable in the market. The Danish Financial Supervisory Authority shall prepare a set of guidelines for the determination of this rate.” (Section 52(4)(3).)

As will appear from the guidelines prepared in response to this provision, it is optional for companies to decide whether to use a single rate (flat rate), determined in accordance with the provisions of items 3-5 of the guidelines, or a zero-coupon yield curve, determined in accordance with item 6 of the guidelines.

While there are established rules for the calculation of the flat rate, no rules have been specified for the determination of the yield curve for companies opting to use a yield curve rather than a flat rate.

The flat discount rate was determined as the average of the yield on three government bonds weighted to ensure that their maturities correspond to 10 years – with the addition of a premium commensurate with the spread between a 10-year swap rate and a 10-year government bond yield.

Under the rules, the adjustment for risk and uncertainty can be made in the form of a deduction from the discount rate corresponding to 5 per cent. The deduction can

be used both in connection with a flat rate and in connection with a yield curve, see item 7 of the guidelines.¹

The rules governing the discount rate were originally drawn up to correspond roughly to the rules governing the maximum calculation rate applicable before the introduction of fair value accounting rules – a significant reason being that in 2002 it was optional for life insurance companies and pension funds to decide whether to use the new fair value rules or the “old” rules. Hence, there was a wish to ensure that both sets of rules produced the same results in the transitional year between the use of the “old” maximum calculation rate and the introduction of the new “fair value rate”.

2.2. Discount rates to be used by non-life insurance companies

The rules governing the discount rate to be used by non-life insurance companies are set out in section 52(4) of the executive order on accounting for non-life insurance companies.² The provision establishes that: “The rate used for discounting cannot exceed the average interest rate for new investments for a representative cross-section of the company’s interest-bearing assets.” In other words, this rule immediately links the discount rate that can be used with the assets in which the company has invested.

In addition to this rule, special rules apply to discount rates in connection with the calculation of provisions for continuing benefits in industrial injury insurance.³ These rules provide freedom of choice in deciding whether to use a “fixed-rate method” or a “variable-rate method”. Under the fixed-rate method, provisions are to be calculated by discounting at a fixed interest rate that cannot exceed 2.75 per cent p.a.⁴ Under the variable-rate method, individual payments are to be discounted based on the expected time period until settlement, using a rate determined on the basis of a zero-coupon yield curve estimated either on government bond yields or on swap rates.

3. IAS rules

The Task Force has reviewed the IAS/IFRS dealing with discounting, including the principles for choice of discount rates, with a view to assessing whether these rules

¹ The 5-per cent reduction in the rate represents a simplified way of allowing for the risk premium described in section 51(1)(9) of the executive order on accounting: “The estimated price premium which the company must be expected to have to pay in the market to an acquirer of the company’s portfolio of insurance contracts in order for the acquirer to take on the risk of fluctuations in the sizes and payment dates of the guaranteed benefits.”

² The FSA’s executive order of 18 December 2002 on the financial statements of non-life insurance companies.

³ Executive order no. 963 of 2 December 2002 on the calculation basis for provisions covering continuing benefits pursuant to the Danish act on protection against the consequences of industrial injuries.

⁴ Use of the fixed-rate method presupposes that equalisation provisions are established at the same time, meaning that the actual discount rate is 2 per cent rather than 2.75 per cent. The rates mentioned are applied to indexed benefits; consequently, the rates are comparable not with market rates, but with real interest rates.

could form the basis of a discount yield curve to be incorporated in the Danish rules.

3.1. Insurance contracts

The IASB has not yet issued a standard for measurement of insurance liabilities. The existing standard for insurance contracts, IFRS 4 issued in March 2004, is a temporary standard (Phase 1) to be replaced at a later time by a standard (Phase 2) which – in contrast to the current IFRS 4 – will set out more detailed principles for measurement of insurance liabilities and assets, i.e. assets and liabilities related to an entity being a party to an insurance contract.

The current IFRS 4 thus does not stipulate any obligation for companies to discount insurance liabilities. On the contrary, the standard explicitly allows companies to continue a practice of not discounting insurance liabilities, see IFRS 4(25). At the same time, the standard stipulates that a company which has been applying an accounting policy of discounting insurance liabilities cannot alter this to an accounting policy under which insurance liabilities are no longer discounted. On the other hand, companies that have so far not been discounting their insurance liabilities are allowed to adopt an accounting policy of discounting insurance liabilities with a view to creating a situation in which the value of the liabilities can reflect actual market rates, see IFRS 4(24).

The IASB has made some “tentative conclusions” regarding the content of the forthcoming standard (Phase 2) on insurance contracts. Among these is the conclusion that insurance liabilities and assets are to be measured at fair value, implying the following pursuant to IFRS 4 (BC6):

- (i) an undiscounted measure is inconsistent with fair value.
- (ii) expectations about the performance of assets should not be incorporated into the measurement of an insurance contract, directly or indirectly (unless the amounts payable to a policyholder depend on the performance of specific assets).
- (iii) the measurement of fair value should include an adjustment for the premium that marketplace participants would demand for risks and mark-up in addition to expected cash flows.
- (iv) fair value measurement of an insurance contract should reflect the credit characteristics of that contract, including the effect of policyholder protections and insurance provided by governmental bodies and guarantors.

3.2. Provisions – IAS 37

IAS 37 sets out rules for the accounting treatment of provisions, i.e. liabilities of uncertain timing or amount. Insurance contracts do not, however, fall within the scope of IAS 37, given that the rules for measurement of insurance liabilities are planned, as specified above, to be the subject of a separate standard. Had insurance contracts not been explicitly excluded from the scope of IAS 37, they would have fallen within the definition of provisions.

IAS 37 does not refer to fair value as a target for the valuation of provisions. However, the principles set out in the standard do seem, in practice, to be commensurate with fair value measurement.

The main principle is that “the amount recognised as a provision should be the best estimate of the expenditure required to settle the present obligation at the balance sheet date” (IAS 37(36)). It is also specified that the amount should be discounted if necessary. “Where the effect of the time value of money is material, the amount of a provision should be the present value of the expenditures expected to be required to settle the obligation” (IAS 37(45)).

As far as the discount rate is concerned, it is specified that: “The discount rate (or rates) shall be a pre-tax rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability. The discount rate(s) shall not reflect risks for which future cash flow estimates have been adjusted” (IAS 37(47)).

In principle, there are two ways to take into account the uncertainty pertaining to the amount to be recognised as a provision. The uncertainty may be recognised either in the assessment of future cash flows or in the assessment of the discount rate⁵. While IAS 37 does not stipulate which of these approaches (or combination of approaches) to adopt, the standard does emphasise that double recognition must be avoided. In other words, the same risk must not be taken into account both in the assessment of future cash flows and in the determination of the discount rate to be used.

3.3. Financial instruments – IAS 39

IAS 39 is the standard setting out the most detailed rules for fair value measurement. The standard addresses financial instruments and does not include insurance assets and liabilities (as already mentioned, a separate standard is intended for insurance assets and liabilities).

IAS 39 establishes that quoted prices in an active market for the instrument in question provide the best indication of the fair value of an asset or a liability. If quoted prices are not available, the fair value must be estimated using a valuation technique that includes all current market data that would be taken into account by market participants, should they agree on a price for the instrument in question.

One of the most significant elements taken into account by market participants in the pricing of financial instruments is the basic rate reflecting the time value of money. The standard establishes the following (IAS 39(AG82(a))):

“The time value of money (i.e. interest at the basic or risk-free rate). Basic interest rates can usually be derived from observable government bond prices and are often quoted in financial publications. These rates typically vary with the expected dates of the projected cash flows along a yield curve of interest rates for different time

⁵ The latter option, i.e. recognition of the risk in the discount rate, is the approach typically adopted in connection with credit risks.

horizons. For practical reasons, an entity may use a well-accepted and readily observable general rate, such as LIBOR or a swap rate, as the benchmark. (Because a rate such as LIBOR is not the risk-free interest rate, the credit risk adjustment appropriate to the particular financial instrument is determined on the basis of its credit risk in relation to the credit risk in this benchmark rate.)”

The specific interest rate to be used for discounting will, in addition to this basic rate, have to include a premium reflecting the credit risk attached to the payments under the financial instrument in question. The standard establishes the following (IAS 39(AG82(b))):

“*Credit risk.* The effect on fair value of credit risk (i.e. the premium over the basic interest rate for credit risk) may be derived from observable market prices for traded instruments of different credit quality or from observable interest rates charges by lenders for loans of various credit ratings.”

3.4. Post-employment benefit obligations – IAS 19

IAS 19 establishes, among other things, how post-employment benefit obligations are to be treated for accounting purposes. The standard establishes (IAS 19(78)):

“The rate used to discount post-employment benefit obligations (both funded and unfunded) should be determined by reference to market yields at the balance sheet date on high quality corporate bonds. In countries where there is no deep market in such bonds, the market yields (at the balance sheet date) on government bonds shall be used. The currency and term of the corporate bonds or government bonds shall be consistent with the currency and estimated term of the post-employment benefit obligations.”

Later in the standard (IAS 19(81)), it is established that:

“In some cases, there may be no deep market in bonds with a sufficiently long maturity to match the estimated maturity of all the benefit payments. In such cases, an enterprise uses current market rates of the appropriate term to discount shorter term payments, and estimates the discount rate for longer maturities by extrapolating current market rates along the yield curve. The total present value of a defined benefit obligation is unlikely to be particularly sensitive to the discount rate applied to the portion of benefits that is payable beyond the final maturity of the available corporate or government bonds.”

3.5. Assessment of the IAS rules

The existing IAS rules do not include requirements for insurance companies and pension funds to discount insurance liabilities, given that, as yet, there is no standard establishing specific rules for measurement of insurance liabilities. It does follow, however, that an accounting policy involving discounting of liabilities is more compliant with IAS than an accounting policy that does not involve discounting. It also follows that the discount rate to be used in case of discounting should be a market rate prevailing at the time of calculation and corresponding to the term and currency of the liabilities to be discounted. In other words, a rate

dependent on term or a yield curve should be used. This conclusion can be drawn from the IASes on other types of liabilities, including liabilities similar to insurance liabilities, and from the “tentative conclusions” published by the IASB on the content of the forthcoming insurance standard.

In areas for which IAS rules have been established for discounting, it is established that the specific discount rate to be used should contain two elements: the basic interest rate reflecting the time value of money and a premium for the credit risk attached to payments.

Under the IAS rules, these conditions apparently apply uniformly to measurement of assets and liabilities. Applied to liabilities, a controversial effect of the principles is that a company’s creditworthiness has an impact on the size of its liabilities. In other words: the lower the creditworthiness of a company, the higher the credit risk applying to its liabilities will be and the higher the discount rate to be used in the measurement of the company’s liabilities. Consequently, the value of liabilities will fall if the company’s creditworthiness declines.

It follows from the IAS rules that the credit risk attached to the liability in question is what should be reflected in the discount rate. Different degrees of credit risk may be attached to different liabilities in the same company. This is reflected, among other places, in the IASB’s tentative conclusions regarding the principles for measurement at fair value of insurance liabilities in the forthcoming standard for insurance contracts. These conclusions establish that the impact of measures taken to protect the interests of policyholders should be taken into account when the credit risk element of the discount rate is determined.

Apart from a premium justifiable on account of the credit risk attached to the liability in question, the principles for discounting as set out in IAS 37, IAS 39 and in the IASB’s tentative conclusions regarding the forthcoming insurance standard, do not seem to allow a premium to be added to the discount rate relative to a basic interest rate reflecting the time value of money.

The rules of IAS 19 differ in this respect, given that this standard – without further justification – basically requires use of the yield on high quality corporate bonds in the discounting of post-employment benefit obligations. This rule applies explicitly whether or not post-employment benefit obligations are funded or unfunded; incidentally, it is not attached to the credit risk of post-employment benefit obligations, either.

The standards have been issued at different times and are based on different principles; other than that, no explanation is offered for the discrepancy between the standards. Thus the IAS rules do not point to an unambiguous definition of “the time value of money”.

4. Market value of insurance liabilities

There is no market for the liabilities of insurance companies from which the fair value of these liabilities can be immediately derived. In order to determine the fair value of the liabilities, it is thus necessary to use a valuation technique based on a simulated transaction between independent and informed parties.

The situation used as the basis for the simulated transaction may be decisive for the valuation. As far as insurance liabilities are concerned, there seems to be two options. The valuation may be based on a transaction in which another insurance company acquires the insurance portfolio of the company holding the liabilities. The fair value of the liabilities may thus be assessed based on the “price” the assigning company would have to pay to the other company in order for this company to take on the liabilities. The alternative would be to assess the value of the liabilities in a current transaction between the policyholders and the company; in other words: what “price” would be established between the individual policyholders and the company in case they had agreed on immediate settlement of the liability.

An assessment based on the former transaction does not seem to permit inclusion of the credit risk attached to the “selling” company. The acquiring company should expect to have to settle the liabilities towards the policyholders without taking account of the credit risk that may be attached to the “selling” company.

In an assessment based on the latter transaction, on the other hand, it seems to be relevant to include the credit risk attached to the company. If a significant credit risk is attached to the company, the policyholders will be willing to settle receivables at a lower price than would have been the case had a lower credit risk been attached to the receivables. In that case, it will also be relevant to include any measures taken to protect the interests of policyholders, such as registered assets, capital adequacy requirements, guarantee schemes and ongoing supervision. The existence of such measures indicates that the credit risk element in relation to insurance liabilities pertains to the individual company to a lesser degree than is the case for most other types of liabilities.

In the opinion of the Task Force, it remains to be clarified whether the forthcoming IAS rules on measurement of insurance liabilities will be based on the former or the latter type of transaction – or on a combination of both.

Several representatives from the Task Force have pointed out that valuation based on assignment of insurance portfolios between insurance companies means that a higher rate should be used for discounting than the basic interest rate, which does not take the credit risk attached to the liability into account – the reason being that a possible acquirer of the insurance liabilities will expect to be able to obtain a higher return in the market. This expectation will be reflected in the price of the liabilities.

5. Market rates and credit risk

Credit risk constitutes the most significant difference between corporate bonds and government bonds. Credit risk is the risk that the investor may lose part of or the entire principal and interest payments, where applicable, in case the bond issuing company is unable to fulfil its obligations.

Credit risk is based on a credit rating assessment of the issuing companies. Such ratings are made by a number of international credit rating agencies, such as Standard & Poor's (S&P). The credit ratings are divided into different rating categories. S&P's rating categories for long-term debt are listed below.

Rating (S & P)	Description
AAA	Highest rating
AA	Very high rating
A	Upper medium rating
BBB	Lower medium rating
BB	Low rating, speculative
B	Very speculative
CCC	Significant risk
CC	High risk of bankruptcy
C	Facing bankruptcy
DDD	Bankrupt

The domestic and foreign debt of the Danish government has been assigned the highest rating (AAA) by Standard & Poor's. The government's domestic debt was assigned the AAA rating by Standard & Poor's in March 1981, while its foreign debt was assigned the AAA rating in February 2001. The Danish government debt may thus reasonably be considered risk-free.

6. Construction of a yield curve

The Task Force has discussed the issue of the market rates to be used as the basis for the construction of a basic yield curve. The discussion was limited to government bonds and the swap market. In chapter 7 of this Report, it is discussed whether or not discount rates should be determined with the addition of a premium relative to the rates from a yield curve.

6.1. Government bond market

The use of Danish government bonds as the basis for the determination of a discount yield curve is not unproblematic – especially since the number of long-maturity assets is limited or even non-existent. The longest-maturity Danish government bond is the 7/24 with a circulating volume (nominally) of DKK 25 billion. The number of bonds for estimation of the long horizon of the yield curve is limited. Just DKK 50 billion of government bonds out of a total outstanding volume

of DKK 500 billion of these bonds have a maturity of more than 10 years. Looking at bonds with maturities shorter than the 7'24, there are bonds expiring in 2015 and 2017. This makes the yield curve particularly sensitive to changes in the price of the 7'24. This is inexpedient and one of the reasons for the latest change in the method for calculating the discount rate.

Liquidity in the Danish government bond market constitutes another problem. Liquidity is highest in the 2- and 10-year segments, while relatively limited for the 7'24.

There are no indications that long-term Danish government debt will be issued in the future and on an ongoing basis. In the long term, the natural shortening of maturities will thus eliminate the estimation basis for the long-maturity portion of a yield curve based on Danish government bonds.

6.2. Swap market

The Danish swap market provides an alternative to government bonds. Swap rates are the rates at which prime banks offer funds to other prime banks. The difference between the swap rate and the yield on a government bond with a given maturity reflects the credit risk attached to the issuing bank. The credit risk attached to swaps currently ranges somewhere between AA and AAA.

At present, four Danish banks are actively quoting Danish swaps. Other participants in the Danish swap market are foreign banks, the Danish central bank and bond issuers.

Swaps with a maturity of up to 30 years can be traded in the Danish market. However, the best liquidity is found in the 2- to 7-year segments, the main reason being the activity in asset swaps related to mortgage loans with floating rates. Liquidity in swaps with a maturity exceeding 10 years is relatively limited. Swaps forming part of the segment with maturities up to 10 years are traded with a bid-ask spread of 1.5 basis points. In the 10- to 20-year segment, the spread is in the order of 2 basis points.

For purposes of comparison, liquidity in the Euromarket is significantly higher – best in the 2, 5, 10, 15, 20 and 30-year maturities. Swaps with maturities in excess of 30 years (typically 40 and 50 years) are quoted in the Euromarket. The bid-ask spread in the Euromarket for the segment with maturities of up to 10 years is in the order of 0.75 basis points, while approximately 1 basis point for the 20-year segment and in the order of 1.5 basis points for the 20-30-year segment.

The Danish swap market is, however, closely linked to the Euromarket. The correlation between changes in Danish swap rates and euro swap rates is generally high – in excess of 90 per cent for all maturities. Due to this close correlation with the Euromarket, pricing in the Danish market may be said to be stable as well as true and fair. Special circumstances may, however, affect this correlation as was evidenced by the Danish euro referendum in September 2000.

Determination of a yield curve based on the swap market is in compliance with the principle governing the determination of the existing flat discount rate, implying that, in principle, the flat discount rate used corresponds to a Danish swap rate for a 10-year maturity.

6.3. Three models

In view of the above, the Task Force has excluded the use of government bonds as the basis for determination of a yield curve. Instead, the Task Force has considered three other possible yield curve models. The point of departure has been the realisation that there is no ideal model; there will be drawbacks to any model and thus a choice has to be made, weighing the pros and cons of each model. These are the three models:

Model 1

Using this model, the yield curve is determined based on Danish swap rates. The drawback of this model is that the Danish swap market is not liquid – especially when it comes to maturities exceeding 10 years. In other words, the curve may be influenced by individual interests and major individual transactions. However, the euro swap rate is taken into consideration in the determination of Danish swap rates. Consequently, any impact from individual interests or major individual transactions will be short-lived and unstable. However, even a short-lived impact may be very significant in case it coincides with the calculation of accounting values.

The advantage of the model is that Danish swap rates are determined in Danish kroner, thus corresponding with the currency in which the liabilities to be discounted is denominated.

Model 2

Using this model, the yield curve for maturities of up to 10 years is based on Danish swap rates. For maturities from 10 years upwards, the yield curve is based on the euro swap rate.

The advantage of the model is that the level for the curve is determined based on the DKK swap rate. When it comes to maturities for which the DKK swap rate is illiquid (i.e. maturities exceeding 10 years), the shape and slope of the euro swap curve is applied to the Danish curve. This means that the curve is significantly less susceptible to be influenced by individual interests and major individual transactions than is the case with model 1.

The drawback of the model is that it does not reflect situations in which the shape of the Danish yield curve systematically deviates from the curve for the euro swap rate. Thus the model does not fully meet the requirement that the yield curve should, in so far as possible, reflect the rate in Danish kroner (DKK). Another drawback of the model is that – compared with the other two models – it is less transparent and more complicated to implement and maintain.

Model 3

Using this model, the yield curve is determined based entirely on the euro swap rate – allowance being made, however, for the difference between euro rates and swap rates in Danish kroner.

The advantage of the model is that the curve reflects the most liquid interest rate market; thus the curve will also not be influenced by individual Danish interests.

The drawback of the model is that the curve is, in effect, not a yield curve in Danish kroner. Thus it is unable to reflect changes in the relationship between the Danish yield curve and the euro yield curve.

6.4. Task Force recommendation on the three models

Based on an assessment of the pros and cons of the three models, there is a consensus among the Task Force members to propose that, as a starting point, model 3 be used – the rationale being that liquidity considerations should be weighted highly. There is a consensus among the Task Force members that a spread should be incorporated to reflect the difference between the Danish interest rate level and the euro rate level. The spread should be determined with a view to ensuring that it is as current as possible; at the same time, it should not, in so far as possible, be susceptible to be influenced by individual Danish interests.

There is also a consensus among the Task Force members to propose that subsequently a technical report should be made on estimation method, determination of yield spread, etc. Principles should be drawn up for how to determine interest rates exceeding the time horizon of the data basis (30 years). How the spread is to be incorporated and what data are to be used as the basis of the spread also remains to be decided. There is a consensus among the Task Force members that if, in special situations, the model chosen produces misleading statements relative to the Danish interest rate level, it should be possible for the Danish Financial Supervisory Authority to deviate from the model.

7. Premium for credit risk

Use of discount rates determined based on a yield curve using swap rates means that the discount rates include a small premium for risk; this is not the case if the yield curve is based on a risk-free interest rate. The size of the risk premium corresponds to the market assessment of the risk applying to financially sound companies in the financial services sector.

The Task Force representatives from the Danish Insurance Association have argued that the premium on the discount yield curve should be higher than that included in the swap rate. This premium should be determined to ensure that the discount rate corresponds to the yield obtainable on corporate bonds in the AA category. Given that there is no market for such bonds in Denmark, the Danish Insurance Association proposes that the premium in question should be obtained from markets in which such bonds are listed.

The premium proposed by the Danish Insurance Association is not, however, in compliance with the premium so far used in connection with the flat discount rate.

8. Other Task Force recommendations

The Task Force has assessed a number of other factors pertaining to the determination of discount rates. The Task Force recommendations on these factors are set out below.

8.1. Possibility of using a maturity-independent discount rate

There is a consensus among the Task Force members that there are no technical or professional reasons for using a discount rate that is independent of the maturity of the liabilities to be discounted. The Task Force members therefore recommend considering setting a time limit on the possibility of continuing to use the flat 10-year discount rate in life insurance.

8.2. Uniform yield curve for all types of insurance

There is a consensus among the Task Force members that there is nothing to justify the use of different principles for the yield curves used for different types of insurance liabilities. Thus the proposed yield curve should also be applicable by non-life insurance companies to the extent that it is relevant to discount non-life insurance liabilities. This also applies to provisions for continuing benefits in industrial injury insurance.

8.3. Possibility of using a standard deduction for risk and uncertainty

Under the current rules, it is possible to make a standard deduction of 5 per cent from the discount rate in order to take into account risk and uncertainty in terms of cash flows. There is a consensus among the Task Force members that the size of the premium for risk, uncertainty and the value of guarantees should, in principle, be assessed and justified by each company and that the premium should be taken into account in the cash flows, rather than be a deduction in the discount rate. The Task Force members therefore propose considering setting a time limit on the possibility of applying the 5 per cent standard deduction.

8.4 Publication

There is a consensus among the Task Force members that it would be appropriate for the Danish Financial Supervisory Authority to update and publish the yield curve on a daily basis. It should, however, also be possible for individual institutes to calculate the yield curve based on the directions given.
