IFRS

IASB/FASB Meeting March 2011

IASB
Agenda
reference **3F**

FASB
Agenda
reference **60F**

Staff Paper

Project	**Insurance contracts**
Topic	**Discount Rate for participating contracts**

What is this paper about?

1.   This paper examines which additional considerations apply in determining the discount rate for insurance contracts that contain participating features.

Staff recommendation

2.   The staff recommend that the boards:

(a)   clarify that the objective of the discount rate used to measure participating insurance contracts should be consistent with the discount rate used to measure non-participating insurance contracts.

(b)   provide guidance that to the extent that the amount, timing or uncertainty of the cash flows arising from an insurance contract depend wholly or partly on the performance of specific assets, the insurer should adjust those cash flows using a discount rate that reflects that dependence.

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3.   This paper does not discuss:

   (a)   whether the cash flows for the participation feature are within the contract boundary.

   (b)   scope issues regarding the inclusion or exclusion of financial instruments with discretionary participation features.

   (c)   whether there should be a measurement alternative if the assets linked to the cash flows to the policyholder are not measured at a current value.

   We will discuss these issues at a future meeting.

Structure of this paper

4.   This paper provides:

   (a)   Background on participating features and the considerations in the Exposure Draft *Insurance Contracts* (ED) and the Discussion Paper *Preliminary Views on Insurance Contracts* (DP)

   (b)   An overview of techniques to measure the effects of policyholder participation

   (c)   Staff recommendations on how the boards should specify the discount rate for participating features in the measurement of the insurance contract liability.

   (d)   Consideration of the potential implications of any decisions about the discount rate for other parts of the project.

Background

5.   In some insurance contracts, the cash flows depend on the performance of a portfolio of insurance contracts, a pool of assets or even the performance of

the insurance company. Such 'participating insurance contracts'[1] may provide such benefits in addition to guaranteed or predetermined benefits. See Appendix B for an overview of participating features.

6.   Examples of participating insurance contracts are:

(a)   Unit-linked contracts (where some or all benefits are determined based on the price of units in an internal or external investment fund, ie a specified pool of assets held by the insurer or a third party and operated in a manner similar to a mutual fund).

(b)   Contracts that offer a minimum guaranteed benefit (which could have as well the form of a minimum guaranteed return) and also participation in the performance of a specified pool of contracts or more restricted in a pool of associated assets, which is forwarded to individual policyholders, often in a second step, through a reduction of premium, additional coverage, higher benefits or cash dividends. Examples include:

(i)   Participating endowment life and annuity insurance contracts in continental Europe, where policyholders share usually in the entire surplus achieved by the insurer in fulfilling the contracts collectively.

(ii)   "With-profits" contracts in the UK in which cash from all with-profits contracts is aggregated commonly in a separated with-profits fund, invested widely subject to the insurer's investment policy.

(iii)   Policyholder dividends in US life insurance. The actual dividend scheme in some situations may depend on the state law, which might or might not require a certain relationship to the achieved performance of the insurer.

(c)   Universal-Life contracts that offer participation through additional interest credited to the explicit account balance based, subject to the

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[1] For the rest of this paper, 'participating insurance contracts' is used to describe contracts with these characteristics.

discretion of the insurer, on the performance of a specified pool. The policyholder can vary the amount of premium payments.

7. Paragraphs 30-34 of the ED provide guidance on the time value of money (ie the discount rate). Agenda Paper 3D/ 58D for the 17 February 2011 board meeting summarised the comments received on the discount rate for non-participating contracts.

8. Paragraph 32 of the ED provided additional guidance for applying the principles of the time value of money section to participating contracts, as follows:

> **"If the amount, timing or uncertainty of the cash flows arising from an insurance contract depend wholly or partly on the performance of specific assets, the measurement of the insurance contract shall reflect that dependence. In some circumstances, the most appropriate way to reflect that linkage might be to use a replicating portfolio technique (see paragraphs B45–B47)."**

9. Some readers question whether this paragraph implies that there are two radically different approaches for determining the discount rate for participating and non-participating contracts. They have interpreted paragraph 32 as requiring an insurer to use an asset-based discount rate for all the cash flows arising from participating contracts.

10. On 8 November 2010, the staff posted on the IASB's public website a staff paper intended to clarify the intent of paragraph 32. We have attached an excerpt of this paper as Appendix C.

11. In that paper, the staff had highlighted the notion of a replicating portfolio. A replicating portfolio is one whose cash flows exactly match those contractual cash flows in amount, timing and uncertainty. While some comment letters welcomed the clarification, others asked for a more comprehensive assessment or questioned the applicability and practicability of the replicating portfolio in their circumstances. Some disagreed with the staff paper because

they believe it indicated that paragraph 32 requires the use of a replicating portfolio technique for participating contracts in all circumstances.

12.   In addition, some respondents question how the notion of a replicating portfolio interacts with other elements of the building block approach:

  (a)   Some stated that the use of the replicating portfolio technique could lead to inconsistent results in presentation, because a replicating portfolio is not decomposed into the three building blocks.

  (b)   Others suggested that the guidance on the replicating portfolio should be included in the general measurement section rather than in the section regarding the time value of money. The staff agrees that paragraph 32 of the ED is intended to give guidance that an insurer should reflect the risks within the entire measurement of the participating contract, and does not solely provide guidance for the determination of the discount rate in isolation.

13.   Respondents generally did not question the measurement objective but rather asked to be free in the choice of using the most appropriate measurement technique to depict the risks inherent in policyholder participation for their specific circumstances. Thus, some proposed that the boards should not limit insurers to one specific technique for measuring the participating insurance contract when different methodologies may achieve the objective, ie to determine the policyholder participation within the measurement of the insurance contract liability. Those methodologies include:

  (a)   Measuring the participating insurance contract using probability-weighted cash flows and a risk adjustment effectively eliminating the risk and discounting at a risk-free rate;

  (b)   measuring the participating insurance contract using cash flows that have been adjusted for risk (including the asymmetric risk sharing) and discounting using an asset-based rate that is consistent with the

assumptions (and also reflects the asymmetric risk sharing) in the cash flows;

(c)   replicating portfolios.

Staff Analysis and Recommendation

Measuring policyholder participation

14.   In principle, the measurement objective for insurance contract liabilities should be the same for non-participating contracts and participating contracts. In other words, the measurement of both non-participating and participating insurance contracts should reflect the characteristics of the liability.

15.   When there is no link between the liability and the assets supporting the liability, this implies that the characteristics of the assets are not relevant for the measurement of the liability. However, in participating insurance contracts, there is a direct or indirect linkage to assets. Consequently we analyse in this paper whether additional consideration should be given to the measurement of the liability for participating contracts compared to non-participating contracts. In particular, we examine whether a different discount rate should be used for participating contracts.

16.   Policyholder participation is a form of risk sharing between policyholders and the insurer (and, in effect, the shareholder in the insurer). This can be more complicated to measure when the risk sharing is asymmetric: ie when the policyholder participates in a gain on the underlying assets but is protected from loss because of a guaranteed minimum value. In the staff's view, the measurement of participating contracts should reflect this asymmetric element and specifically the interaction between asset-linkage and guarantees to the policyholder. The asymmetric risk sharing element is relevant information for users of financial statements because it is often the most important economic risk to the insurer in participating contracts. Analysing the nature of the asymmetric risk sharing and identifying the correct measurement parameters

is the key task in measuring participating contracts to represent faithfully the economic characteristics of the risks in fulfilling the guarantees and how they are split between insurer and policyholder.

17. The ED proposed that the measurement of insurance contracts should be based on the use of observable market information to the largest extent possible. One way to achieve this is through the concept of a replicating portfolio. That concept assumes that if a contract gives rise to a set of cash flows and risks that can be exactly replicated in all scenarios by the cash flows arising from a portfolio of assets (ie the replicating portfolio), the measurement of the replicating portfolio should in theory be the same as the measurement of the insurance contract. Thus, the insurance contract should be measured at the fair value of the replicating portfolio because it achieves the measurement objective of the building blocks directly. A replicating portfolio's fair value can also be viewed as a benchmark to measure the risk associated with the underlying cash flows through the building blocks.

18. The reference to replicating portfolios in the ED and the staff paper was not intended to imply that replicating portfolios exist or could be used on a large scale to measure the insurance contract liability. Rather the notion is intended to remind people that it is not appropriate to ignore market information where it is available. As an example, if an option exists in an insurance contract and the same or similar option may be purchased in the market, the measurement of both should be similar if not the same. Paragraph B47 of the ED (reproduced in Appendix A) provides an example of how a replicating portfolio could be applied to valuing a put option.

19. If the insurers' liability depends whole or partly on specific assets not owned by the insurer, the measurement of the insurance contract liability will result in the same value as if that derivative was bifurcated and measured separately.

20. Very often there will not be a replicating portfolio that exactly matches the cash flows of an insurance contract, specifically not if the participation feature refers to entity-specific surplus, the payment due upon an insured event (eg

death) is not based on the fair value of the replicating portfolio or the cash flows are subject to insurer's discretion. Additionally, as discussed in paragraph B47 of the ED, there is no requirement to use a replicating portfolio even if one exists. However, paragraph B47 indicates that any other technique used should be expected to achieve the same measurement as a replicating portfolio approach for the contract as a whole. In other words, the alternative technique should reflect observable market variables to the largest extent possible.

21. Paragraphs 22-27 describe how the discount rate interacts with the method used to model the probability-weighted expected cash flows.

Risks can be fully reflected in the other building blocks

22. The following example illustrates how the risk can be assessed in the "probability-weighted cash flows" and "risk adjustment" building blocks. An insurer provides a guarantee of 1,000 and a participation in a pool of assets which is estimated to result in the outcomes shown in the graph. The broken red line illustrates all possible asset return scenarios, the solid blue line the resulting policyholder participation.
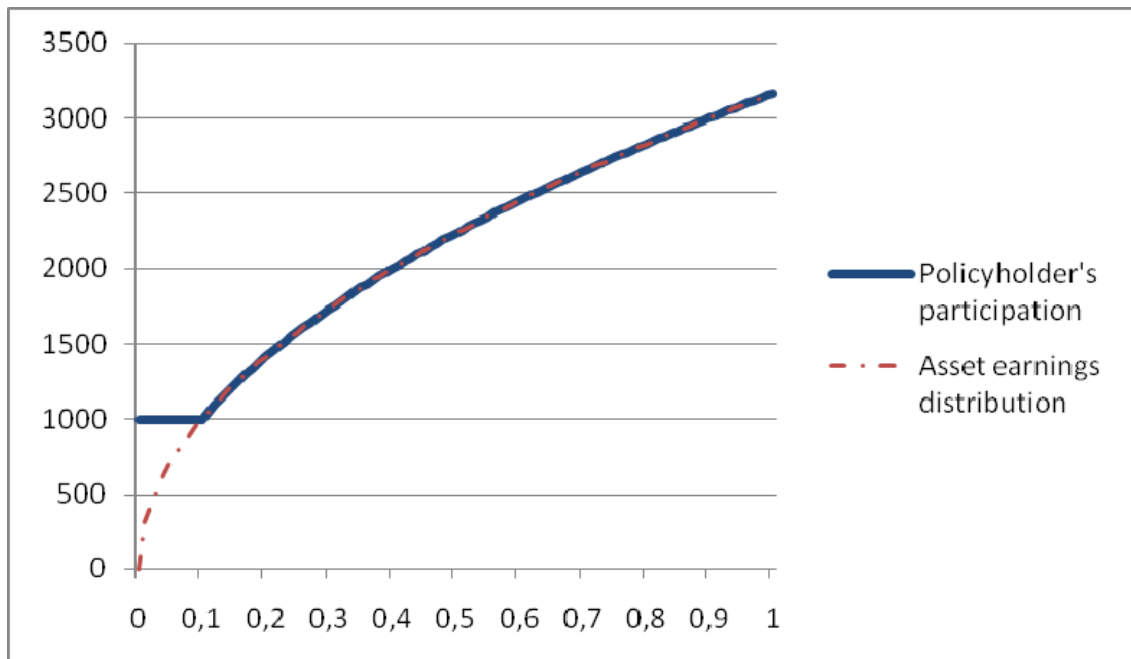
23. If the above is representative of all possible scenarios, the insurer incurs a loss in 10% of the scenarios, ie where the assets do not provide sufficient returns to cover the guarantee. The probability weighted cash outflows – if based on the blue line – represent all scenarios for the insurer.

24. The insurer can use the scenarios and distribution above and eliminate the risks in the cash flows through the risk adjustment. Based on this, there is no reason why the discount rate used to adjust for the time value of money should not be the same as would be used if the cash flows arose from non-participating contracts. Consequently in this case the discount rate would be the same for participating and non-participating contracts.

Risks are not fully reflected in the other building blocks

25. In some cases it can be more appropriate to base the cash flows on an estimate of an asset return, which is not free of risks. If this is done, the discount rate should also reflect this inclusion of risks. However, the discount rate will not simply be the rate used to project the cash flows but also require an adjustment to reflect the participation of the policyholder in the cash flows. Furthermore, the selection of the discount rate should also reflect any asymmetric risk sharing. The need for this is demonstrated in the following (simplified) example (a more detailed calculation basis can be found in Appendix D):

Fact pattern and assumptions for the example

A four-year insurance contract with an annual premium of CU 10,000 in the first three years results in a guaranteed payout in year 4 of CU 33,100. Based on a discount rate of 5%, this contract would result in no margin. For an additional premium of CU 1,600 the insurance contract includes a participation feature, which gives the policyholder the right to additionally participate in a pool of assets in proportion to the total premium paid. The current market yield of these assets is 9%. The current observed market price for the asymmetric risk sharing is 10% of the asset's current market yield. The participation feature is projected to pay additional CU 5,950. In this example, assume:

> - There are no acquisition costs and there is no risk margin for the non-financial risk.
>
> - The pricing is consistent with the accounting and not intended to result in income (this is why the margins are calibrated to 0).
>
> - The price for the additional participation feature can be separated determined which is not always the case in reality.
>
> - There are no changes to the cash flows through mortality etc.

26. The following discount rates can be considered in this example:

    (a) **Apply the non-participating discount rate to all cash flows**

        If the insurer discounts all the cash flows at 5%, this leads to a day one loss of CU 538, because the discount rate does not fully reflect the characteristics of the cash flows for the participation and the economics of the contract. This would be the correct result if the full CU 39,050 (CU 33100+ CU 5,950) was guaranteed and not subject to the investment risk shared with the policyholder.

    (b) **Apply the asset's current market yield to all cash flows**

        If the insurer discounts the entire contract at the asset's current market yield (9%), this would lead to a margin of 1,698 (even though the contract was priced to result in no gain). This discount rate does not faithfully represent the economics of this insurance contract.

    (c) **Apply the non-participating discount rate for the guarantee and the asset's current market yield for the participation feature**

        If the insurer discounts the guaranteed cash flows with 5% and the participation at 9% this would lead to a margin of CU 142, because the 9% does not reflect the current value of the asymmetric risk sharing in the asset returns. This discount rate also would not faithfully represent the economics of this insurance contract.

    (d) **Apply the non-participating discount rate for the guarantee and the adjusted asset's market yield for the participation feature**

The appropriate discount rate for this contract would discount the policyholder participation at 90% (to incorporate the asymmetric investment risk) of the 9% expected return and discount the guaranteed part at 5%, leading to no margin (in this case) which is consistent with the assumptions about the economics above.

27. The example – while very simplified- demonstrates that the selection of the appropriate discount rate needs to be consistent with the determination of the cash flows. The asymmetric risk sharing needs to be appropriately reflected. In some circumstances this might be done by adjusting the discount rate used. As the price of the risk sharing naturally changes over time, a constant 'hair-cut' likely is unlikely to reflect the risks appropriately. However, some participating contracts allow the insurer to limit the asymmetric risk by changing the participation ratio. The asymmetric risk needs to be considered in measuring participating contracts. Simply applying an asset-based discount rate without reflecting the asymmetry will not lead to a faithful representation of the characteristics and the economics of the insurance contract liability. Thus, the discount rate used to adjust for the time value of money for participating contracts should differ from the rate for non-participating contracts only to the extent that the assets affect the measurement of the cash flows, ie to reflect the same risk consistently in cash flows and the discount rate.

Conclusions

28. The staff believes that:

   (a) there is no reason for the objective of the discount rate to differ between participating and non-participating contracts.

   (b) there is a need to clarify the extent to which paragraph 32 in the ED should be applied to participating insurance contracts. As the level of linkage to asset performance varies among participating contracts, the staff recommend that the boards provide guidance that the discount

rate applied to the cash flows should reflect the extent to which the amount, timing or uncertainty of the cash flows arising from an insurance contract depend on the performance of those specific assets.

29.   In the staff's view these clarifications would provide:

(a)   the intended consistency for the measurement of the insurance contract liability between all insurance contracts (participating and non-participating). For a cash flow that reflects the risks based on the underlying assets, there should be no omissions or double counting through the discount rate.

(b)   that a non-participating contract can be viewed as a specific form of a participating contract with a participation of nil.

Question for the boards

Do the boards agree:

1)   to clarify that the same objective applies to the discount rate used to measure both participating and non-participating contracts.

2)   to provide guidance that *to the extent* that the amount, timing or uncertainty of the cash flows arising from an insurance contract depend wholly or partly on the performance of specific assets, the insurer should adjust those cash flows using a discount rate that reflects that dependence? In some circumstances, the most appropriate way to reflect the linkage might be to use a replicating portfolio technique (a replicating portfolio is one whose cash flows exactly match those contractual cash flows in amount, timing and uncertainty).

Potential Implications of Discount Rate Decisions for the Rest of the Model

30.   The staff has not identified potential implications of the discount rate decision on participating contracts on the rest of the model.

Appendix A: Extract from the Exposure Draft on replicating portfolios

Market variables

B43   Estimates of market variables shall be consistent with observable market prices at the end of the reporting period. An insurer shall not substitute its own estimates for observed market prices.

B44   Market prices blend a range of views about possible future outcomes and also reflect the risk preferences of market participants. Therefore, they are not a single point forecast of the future outcome. If the actual outcome differs from the previous market price, this does not mean that the market price was 'wrong'.

B45   An important application of market variables is the notion of a replicating asset, or a replicating portfolio of assets.   A replicating asset is one whose cash flows exactly match those contractual cash flows in amount, timing and uncertainty. In some cases, a replicating asset may exist for some of the cash flows arising from an insurance contract. The fair value of that asset reflects the expected present value of the cash flows from the asset, and it also reflects the risk associated with those cash flows. If a replicating portfolio of assets exists for some or all of the cash flows arising from an insurance contract liability, the insurer can for those contractual cash flows simply include the fair value of those assets in the present value of the fulfilment cash flows, instead of explicitly estimating the expected present value of those particular cash flows and the associated risk adjustment. For cash flows not measured by a replicating portfolio of assets, an insurer estimates explicitly the expected present value of those particular cash flows and the associated risk adjustment.

B46   This [draft] IFRS does not require an insurer to use a replicating portfolio technique. However, if a replicating asset exists and an insurer uses a different technique, the insurer shall satisfy itself that a replicating portfolio technique would be unlikely to lead to a materially different answer. One way to assess

whether that is the case is to verify that applying the other technique to the cash flows generated by the replicating portfolio produces a measurement that is not materially different from the fair value of the replicating portfolio.

B47   As an example of a replicating portfolio technique, suppose an insurance contract contains a feature that generates cash flows equal to the cash flows from a put option on a basket of traded assets. The replicating portfolio for those cash flows would be a put option with the same features. The insurer would observe or estimate the fair value of that option and include that amount in the measurement of the entire insurance contract. However, the insurer could use a technique other than a replicating portfolio if that technique, in principle, is expected to achieve the same measurement of the contract as a whole. For example, other techniques may be more robust or easier to implement if there are significant interdependencies between the embedded option and other features of the contract. Judgement is required to determine which approach best meets the objective in practice in particular circumstances.

Appendix B: Examples of participating contracts

B1.   This appendix is carried forward from Appendix A for agenda paper 6I/ FASB Memorandum 41I of the March 2010 Joint Board meeting. It should remind the boards of the variety and complexity of participating contracts in practice.

B2.   Participating contracts generally contain a guaranteed element as well as a participating feature. The participating feature gives rise to payments to the policyholder, paid out from a distinct share of surpluses, after providing the guaranteed benefits. In some cases the obligation to pay to the policyholders is restricted, for example, to realised surpluses. This means that although the insurer may decide when to realise surpluses and this may establish a timing difference between the amounts recognised in the financial statements and the corresponding amounts immediately available for distribution to policyholders, the amounts are still only available for policyholders. The insurer usually has, to an extent, discretion over the amount and/ or timing of these extra distributions to the policyholders.

B3.   In most countries this discretion is (partially) constrained by legal or regulatory requirements as well as by competitive constrains. In many countries the "contribution principle" applies. The contribution principle means that the distribution of the aggregate accumulated surplus among the policyholders is in the same proportion as each respective contract (or portfolio of contracts) that has contributed to the accumulated surplus.

B4.   The following information on country-specific types of participating contracts is based on an (internal) survey by members of the Insurance Accounting Committee of the International Actuarial Association (IAA). We thank them for providing the information. They are not responsible for how the staff have summarised the information.

B5.   Belgian participating contracts provide a contractual right to share in surplus, but usually do not give specific guidance on how the policyholder participates in the surplus or which share belongs to the policyholder. The insurer determines annually the policyholders' share of surplus, which is solely based on the insurer's discretion (the insurer is entirely free to pay the policyholder any

amount between 0 to 100% of the surplus). After determining the policyholders' share in surplus for the current year, the Belgian regulators require the insurer to pay out 80% of the amounts set aside for allocation to policyholders in the following year. The remaining 20% are to be payable to policyholders in later periods.

B6. Finnish participating contracts determine the policyholders' share entirely based on the insurer's discretion. Actual payments are only driven by competitive market pressure. The insurer decides when to realise surpluses, the individual policyholder's share in that surplus and the timing of the actual allocation. The regulator ensures that the insurer does not allocate surpluses if doing so potentially endangers the insurer's financial stability.

B7. South African life insurers have discretion on the policyholders' share in surplus, as well as on the amount and timing of its allocation or distribution to the individual policyholder. The amounts set aside for policyholders can be negative if they are expected to be recovered during the following three years.

B8. In Australia the policyholders' share in surplus is set aside and allocated to the individual policyholder according to a formula. Legally, the insurer is obliged to set aside 80% of the surplus for policyholders. Some contracts grant an even higher percentage. The amount set aside may become negative and carried forward. If the insurer voluntarily pays more than 80% (or whatever contractually is required), that can be carried forward, thus reducing future amounts to be set aside to pay dividends to future policyholders

B9. Canadian participating contracts require an annual allocation of amounts to individual policyholders, payable immediately in the following year. Law requires that the directors must adopt a formal dividend policy and adopt methods for allocation, which an appointed actuary must approve. In Canada there is little discretion in determining the amount or timing of the surplus once allocated. The contribution principle is followed, with the Appointed Actuary recommending dividends to the entity's Board.

B10. Most Japanese participating contracts force the insurer to immediately set aside policyholders' contractually specified share in the realised surplus. These amounts are not immediately payable to the individual policyholder, but rather

are aggregated over time. The timing of the irrevocable allocation is at the discretion of the insurer, even though the surplus is already realised. The amounts set aside are revocable and loss absorbing, including those referring to future periods of the individual contract.

B11. In the US, the types of contracts are diverse, partly due to significantly different state regulations. Some states allow insurers to apply significant discretion in declaring dividend scales; however, overall they are subject to regulatory control. Regulators are expected to intervene in case of inadequate dividend scales, but that remains untested since in the past all insurers acted in accordance with regulatory rules. If stock insurers issue participating contracts, the amounts distributable to stockholders may be limited by some state laws.

B12. In some states in the US, e.g. New York, state law requires that the insurer sets a minimum percentage of surplus aside for ultimate distribution to policyholders each year. At the same time the law grants insurers some discretion regarding its ultimate allocation. The contribution principle is considered in this allocation.

B13. In the UK participating features are contractually and legally established. The sources to determine the surplus need to be specified and may include sources from non-participating contracts. Policyholders' individual share is typically required to be at least nine times of any allocation to shareholders from aggregated unallocated surplus, to be allocated immediately to policyholders when amounts are allocated to shareholders.

B14. In the Czech Republic and Slovakia participating contracts determine the policyholder's share as a fixed percentage of the realised surplus. The insurer's only discretion is when to realise the surplus, as there is no discretion on timing of allocation or amount of payment to the individual policyholder.

B15. Norwegian law prescribes that the policyholders' share in surpluses has to be two thirds of each annual surplus (partly including unrealised gains). When policies terminate, there is an obligatory payment of 75% of any surpluses (including unrealised gains) determined at that point in time. Insurers can decide when to realise gains (apart from terminating contracts), but there is no further discretion available.

B16. In Italy the participation feature is guaranteed by law to be an entity-wide average of 85% of the realised surpluses (unrealised gains and losses excluded). The exact policyholder's share in the surplus is specified in the individual contract as a specific percentage of investment earnings. The individual policyholder receives its share every year according to the results of the previous year.

B17. French life insurers issue participating investment contracts with a guaranteed minimum annual rate of return on premiums paid, a distinct share in investment returns on the entire surplus of the entity. Under French law the insurer can immediately forward shares in realised surplus to individual policyholders. The remaining amount of the overall required share for policyholders is set aside. However, the insurer has some discretion regarding the timing of the allocation to the individual policyholder. The allocation has to be done within 8 years. The amount set aside can be used to cover subsequent losses to some extent and there might be as well a loss carry forward to be recovered by future surplus.

B18. In Germany virtually all life insurance contracts are participating contracts. There are strict rules determining the share of recognised surplus that has to be set aside for participation of policyholders. Although the subsequent allocation of the amount set aside to individual policyholders is at the discretion of the insurer, the contribution principle is applied. Losses of a period are generally borne by the insurer. Unallocated amounts can be used to cover subsequent losses if otherwise the insurer would be in financial danger. If contracts terminate for any reason, the policyholder receives an appropriate share of unrealised gains allocable to its contract.

Appendix C: Extract from the 8 November 2010 Staff Paper: *Discount rate for participating contracts*

What does the exposure draft propose?

1. For some insurance contracts, the amount, timing or uncertainty of the cash flows arising from an insurance contract depends wholly or partly on the performance of specific assets. In such cases, paragraph 32 of the exposure draft proposes that the measurement of the insurance contract should reflect that dependence. Paragraph 32 goes on to say that, in some circumstances, the most appropriate way to reflect that linkage might be to use a replicating portfolio technique.

2. Some readers have asked the staff whether paragraph 32 would require an insurer to use an asset-based discount rate for all the cash flows arising from participating contracts.

Discount rates and techniques should reflect how the cash flows behave

3. In the staff's view, the notion of a replicating portfolio is critical in this context. Participating contracts generate different sets of cash flows that behave in different ways as there are variations in the cash flows from the assets linked to the contracts:

    (a) Some of the cash flows vary directly with the asset cash flows in all scenarios. For those cash flows, an asset-based discount rate is appropriate.

    (b) Some of the cash flows do not vary at all with the asset cash flows. For these cash flows, the appropriate discount rate is the same as for a non-participating contract.

    (c) Some of the cash flows vary indirectly with cash flows, for example in a manner similar to an option based on those assets. For these cash flows, other techniques are likely to be necessary – for example, option pricing techniques.

An example to illustrate the proposal

4. The following example is intended to illustrate the approach.

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Fact pattern used in the example

Policyholders pay a single premium totalling CU1,000[2] in aggregate for all policyholders. The contracts mature in one year exactly. At maturity, the insurer repays the initial premium plus an investment return. The investment return is a minimum of 10% (ie CU100 in aggregate). If the total return on the assets backing the contract exceeds CU100, policyholders receive 90% of the excess return.

For simplicity, the example assumes there are no lapses, no mortality, and no acquisition costs or other expenses. The example also assumes that all investment return is shared with the same generation of policyholders, and that there is no smoothing of investment returns between different generations of policyholders.

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5. Table 1 illustrates the returns that policyholders and shareholders will receive in four different scenarios: when total assets at maturity are CU1,300, CU1,200, CU1,100 and CU1,000.

Table 1 - Total return

Scenario	1	2	3	4
To policyholders	1,280	1,190	1,100	1,100
To (from) shareholders	20	10	0	(100)
Total return	1,300	1,200	1,100	1,000

6. For example, when total assets at maturity are CU1,300, total returns are CU200 (CU1,300 – CU1,1 00), and policyholders receive CU180 (90%) of that excess, in addition to the guaranteed minimum return of CU100. Thus, the total benefits to the policyholders in that scenario are CU1,280.

7. As table 2 shows, it is possible to replicate the return that policyholders receive with a portfolio made up of the following three components:

(a)   90% of the total assets

(b)   a fixed payment of CU110 (= 10% of the minimum return of CU1,100)

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[2] CU = currency unit

(c)   an option for the policyholders to put 90% of the assets to the insurer (ie to the shareholders of the insurer) at maturity for a strike price of CU990 +90% of CU1,100).

Table 2 - Components of return to policyholders

Scenario	1	2	3	4
90% of total assets	1,170	1,080	990	900
10% of fixed return (1,100)	110	110	110	110
Option to put 90% of assets	0	0	0	90
Total	1,280	1,190	1,100	1,100

8.   These three components of the return to policyholders behave in different ways. Accordingly, they require different approaches to discounting:

(a)   The first component behaves in the same way as 90% of total assets. It is measured at the fair value of 90% of total assets. (To express that in terms of discount rates: the expected cash flows from the first component are discounted at the expected rate of returns on the assets.)

(b)   The second component behaves in the same way as a fixed payment of CU110. It is discounted at the rate the exposure draft proposes for all other cash flows that do not vary with asset returns. That is the rate for instruments that expose the holder to no or negligible credit risk, with an adjustment for illiquidity (see paragraph 31 of the ED).

(c)   The third component behaves in the same way as an option. Option pricing techniques would be used to measure this component.

9.   For completeness, table 3 shows the returns that shareholders receive in each scenario.

Table 3 - Components of total return to shareholders-[/

Scenario	1	2	3	4
10% of total assets	130	120	110	100
10% of fixed return	(110)	(110)	(110)	(110)
Written put option on 90% of assets	0	0	0	(90)
Total	20	10	0	(100)

Summary

10.   As the example illustrates, participating contracts generate different sets of cash flows and those sets behave in different ways in response to asset returns. A single discount rate and a single approach to discounting will not represent faithfully those different behaviours.

Final thought

11.   Some have read the exposure draft as requiring two radically different approaches to discount rates: one approach for non-participating contracts and a different approach for participating contracts. In fact, the underlying approach is the same in both cases. However, for a non-participating contract, none of the cash flows vary with asset returns, and so they behave in the same way as the fixed component in the above example (the component that generates cash flows of CU110).

Appendix D: Detailed calculation basis for example in paragraphs 25 and 26

Fact pattern and assumptions for the example

A four-year insurance contract with an annual premium of CU 10,000 in the first three years results in a guaranteed payout in year 4 of CU 33,100. Based on a discount rate of 5%, this contract would result in no margin. For an additional premium of CU 1,600 the insurance contract includes a participation feature, which gives the policyholder the right to additionally participate in a pool of assets in proportion to the total premium paid. The current market yield of these assets is 9%. The observed current market price for the asymmetric risk sharing is 10% of the asset's current market yield. The participation feature is projected to pay additional CU 5,950. In this example, assume:

- There are no acquisition costs and there is no risk margin for the non-financial risk.

- The pricing is consistent with the accounting and not intended to result in income (this is why the margins are calibrated to 0).

- The price for the additional participation feature can be separated determined which is not always the case in reality.

- There are no changes to the cash flows through mortality etc.

Margin	Year 1	Year 2	Year 3	Year 4
0	10,000	10,000	10,000	-33,100
Par Feature only		Based on asset rate of		9%
	Additional Premium			
	1,600	1,600	1,600	-5,950

Apply the non-participating discount rate to all cash flows

-538	11,600	11,600	11,600	-39,050

Apply the asset's current market yield to all cash flows

1,698	11,600	11,600	11,600	-39,050

Apply the non-participating discount rate for the guarantee and the asset's current market yield for the participation feature

142	11,600	11,600	11,600	-39,050

Apply the non-participating discount rate for the guarantee and the adjusted asset's market yield for the participation feature

0	11,600	11,600	11,600	-39,050