

STAFF PAPER

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Project	Insurance contracts		
Paper topic	Book yield and effective yield approaches to presenting interest expense in profit or loss		
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Introduction

1. In previous board discussions, the IASB directed staff to explore two approaches for determining the interest expense presented in profit or loss and amounts presented in other comprehensive income (OCI). These were the book yield and effective yield approaches.
2. There are different views in how the book yield and effective yield approaches to determining interest expense for presentation in profit or loss would be applied. This paper describes the main features of these different views, and proposes how to define each approach.
3. This paper is the first of four papers that consider the book yield and effective yield approaches. The staff illustrate the proposed book yield approach and proposed effective approach in a number of scenarios in worked examples in Agenda Paper 2B *Illustrative examples of book yield and effective yield approaches* to assist the IASB in understanding the consequences of each approach. Agenda Paper 2C *Use of OCI for contracts with participating features* and Agenda Paper 2D *Should there be a book yield approach for determining interest expense in profit or loss* then consider the applicability of the book yield and effective yield approaches, and consider what approaches should be applied in what circumstances.
4. For context, the staff suggest that the IASB refer to the following papers:

- (a) May 2014 Agenda Paper 2A *Contracts with participating features: Background*, which provides background about contracts with participating features.
- (b) May 2014 Agenda Paper 2B *Possible adaptations for contracts with participating features*, which provides an overview of the issues that the staff intend to consider relating to contracts with participating features.
- (c) June 2014 Agenda Paper 2D *The identification of underlying items*, which discusses the book yield approach to determining interest expense (see paragraphs 55 to 69, and Appendix A of that paper).
- (d) July 2014 Agenda Paper 2A *OCI mechanics for contracts with participating features*, which discusses the effective yield approach to determining interest expense.

Structure of paper

5. This paper is structured as follows:
- (a) paragraphs 6 to 17 describe the background to this paper;
 - (b) paragraphs 18 to 37 describe the book yield approach, and identify the version of the book yield that should be considered further by the Board; and
 - (c) paragraphs 38 to 67 describe the effective yield approach, the main features of two versions of this approach that have been proposed, and identify the version of the effective yield approach that should be considered further by the Board.

Background

6. This section describes:
- (a) The 2013 Exposure Draft *Insurance Contracts* (the 2013 ED) proposals on the interest expense in profit or loss for contracts with participating features (paragraphs 7 to 10) and the feedback received on these proposals (paragraphs 11 to 14); and

- (b) the IASB's recent discussions on presenting interest expense for contracts with participating features (paragraphs 15 to 17).

2013 ED proposals

7. For contracts with participating features, the cash flows that arise as the entity fulfils the contract include the following:
 - (a) cash flows that vary with returns on underlying items¹. Such cash flows provide the policyholder with a return on underlying items and arise only in contracts that have participating features.
 - (b) cash flows that do not vary with the returns on underlying items. Such cash flows include claims handling costs, fixed amounts that would be paid out on the occurrence of an insured event, and fixed amounts paid in all scenarios (ie a floor).
8. Contracts with participating features:
 - (a) have both types of cash flows. In contrast, contracts with no participating features contain only cash flows that do not vary with underlying items;
 - (b) the proportions of those two types of cash flows can vary between contracts; and
 - (c) the proportions between those two types of cash flows may change over time. It may be difficult to predict the extent to which the proportions will vary over time.
9. The 2013 ED proposed that, in determining the interest expense recognised in profit or loss, the entity should apply different discount rates to these different types of cash flows as follows:
 - (a) the discount rates applied to cash flows that do not vary with underlying items would be locked in at inception; and

¹ The 2013 ED referred separately to the cash flows that vary directly and vary indirectly with returns on underlying items. However, this paper discusses all cash flows that vary with returns on underlying items together

- (b) the discount rates applied to cash flows that vary with underlying items would be reset every time there are changes in estimates of investment returns that result in changes in the amounts paid to policyholders.

Consequently, entities would need to split the cash flows into those that vary and those that do not vary, and to apply different discount rates to those two types of cash flow.

10. The reasons for the resetting the discount rate when there are changes in estimates of investment returns that result in changes in the amount paid to policyholder (see paragraph 9(b)) are that doing so would be consistent with:

- (a) the entity's expectation that it will pass on to policyholders the effects of changes in market variables –including interest rates. For example, if market interest rates rise, an entity would expect to receive higher investment income from underlying items in the future and pay higher amounts to policyholders as a result. Discounting higher expected cash outflows using locked-in (ie, lower) discount rates would increase the present value of liabilities and not fairly reflect the economic effects of such a change in market variables.
- (b) the accounting for floating rate debt instruments that are not marked to market through profit and loss (for example, at fair value through other comprehensive income (FVOCI)). For floating rate debt instruments accounted at amortised cost, the 'locked-in' discount rate used to present interest expense is reset upon changes in interest rates.

Feedback on the 2013 proposals

11. Many agree that, when entities present the effect of changes in discount rates in OCI, the discount rate used for determining the interest expense in profit or loss on cash flows that vary with underlying items should be reset.
12. However, as noted in paragraph 7, contracts with participating features include both cash flows that do not vary with underlying items as well as cash flows that vary with underlying items. Some note that splitting the cash flows of a contract into those different types of cash flow would be arbitrary, because there are different ways to split the cash flows. Although these different ways would

achieve the same objective for measurement purposes, they would result in amounts reported in profit or loss and OCI that would not be comparable². The 2013 ED sought to address this problem by prescribing a specific approach for splitting the cash flows. However, feedback indicated that some thought that:

- (a) it would be difficult for entities to split the cash flows, and apply different discount rates to determine interest expense to be recognised in profit or loss, because most entities do not split the cash flows in the way prescribed in the 2013 ED; and
- (b) the costs of applying discount rates updated at different times to different sets of cash flows would not be justified by the benefits of doing so, particularly because splitting the cash flows is not needed for measurement.

13. Accordingly, some suggest that the IASB should modify its 2013 ED proposals so that the discount rates applied to *all the cash flows* arising from the contract would be reset when there is a change in investment returns that result in changes in the amounts paid to policyholders.

14. There were also differences of opinion as to what the objective of the reset discount rate should be. While some agreed with the 2013 ED proposal that the discount rate at the date of the reset should equal the discount rate used to measure the liability at the date of the reset, others disagreed and instead recommended that the discount rate used to determine interest expense in profit or loss should be reset, as follows:

- (a) Some suggest that the discount rate should be reset to an effective yield approach. The effective yield approach determines a yield that exactly unwinds the amount in equity related to the effects of changes in the discount rate (some term this the accumulated OCI) over the life of the

² As discussed in Agenda Paper 2A for the May 2014 IASB meeting, there are actuarial approaches that achieve the objectives of the 2013 ED that the inputs from the market do not contradict market information, while allowing all the cash flows to be measured using the same rate. Thus, using the general approach in the ED, there is no need for an entity to split the cash flows to measure an insurance contract. Splitting the cash flows may be necessary for the mirroring exception. However, the IASB has yet to discuss whether there is any need to retain a form of the mirroring exception proposed in the 2013 ED. The discussion for this paper is based on the measurement model proposed if the mirroring exception is not applied.

contract. This approach could be viewed as another application of the IASB's objective in the 2013 ED of presenting interest expense in profit or loss on an amortised cost basis. This approach is discussed further in paragraphs 38 to 67.

- (b) Others suggest that the discount rate should be reset to a book yield approach. The book yield approach is consistent with how the underlying items are reported in profit or loss (eg market yield for assets held at fair value through profit or loss ('FVPL') and an amortised cost-based yield for assets held at amortised cost or FVOCI). The book yield approach for interest expense has a different objective to the interest expense in the 2013 ED. This approach is discussed further in paragraphs 18 to 37. Some proponents would recommend the book yield approach only if used in conjunction with adjusting the margin with the insurer's share of underlying items.

Recent IASB discussions May – July 2014

15. In the recent discussions on participating contracts in May – July 2014, the IASB was sympathetic to concerns about the complexity imposed by the proposals in the 2013 ED that would result in the need for an entity to split the cash flows for presentation purposes. Consequently, the IASB directed the staff to explore two approaches for determining interest expense for contracts with participating features: the book yield approach and the effective yield approach.
16. Both the book yield and effective yield approach would determine the discount rates used to recognise the interest expense in profit or loss. The amounts recognised in OCI would be difference between the current discount rate used to measure the contract liability on the balance sheet and the interest expense recognised in profit or loss. Neither approach affects the measurement of the contract liability.
17. The IASB also indicated criteria for the applicability of these two approaches. Those criteria are discussed in Agenda Paper 2C.

Book yield approach

18. Paragraphs 19 to 36 describe the book yield approach and the staff's recommendations in respect of a version of the book yield approach to take forward to further consideration by the Board. These paragraphs discuss the following:
- (a) The objective of the book yield approach (paragraph 19)
 - (b) How the book yield approach is applied (paragraphs 20 to 35)
 - (c) The staff's proposals for which variant of the book yield approach should be considered further by the IASB (paragraph 36).

Objective of the book yield approach

19. The objective of the book yield approach is to reduce accounting mismatches between the presentation of interest expense in profit or loss and interest income on the underlying items when there is an economic match between the underlying items and the insurance liability. Supporters of book yield believe that determining net interest income and expense reported in profit or loss using a book yield approach would reflect the long term nature of insurance contracts and the funding of liabilities for contracts with participating features.

How book yield approach is applied

20. An entity would perform the following steps in applying a book yield approach:
- (a) Identify the underlying items that determine the policyholder cash flows that vary with investment returns (paragraph 22).
 - (b) Determine the basis of the accounting return, or book yield, for the specified underlying items (paragraph 23).
 - (c) Construct a yield curve based on the book yield at each reporting date to cover the duration of projected cash flows of participating contracts (paragraphs 24 to 25).

- (d) Adjust to eliminate any differences that arise on initial recognition of contracts when different rates are used for presentation and measurement of those contracts (paragraphs 26 to 35).

21. These steps are described in more detail below.

(a) Identify underlying items

22. The book yield approach is predicated on being able to identify and measure the accounting returns (or ‘book yield’) from the underlying items that determine variable cash flows to policyholders. In previous discussions, the Board directed the staff to ensure that the book yield approach reflects the relationship between the insurance contract and the underlying assets by restricting the application of any book yield approach to contracts for which the entity holds the underlying items and for which the policyholders receive a substantial proportion of the returns from those items. In those circumstances there should be no difficulty for the entity in identifying the underlying items.

(b) Determine book yield for underlying items

23. The book yield is derived from the amounts reported in profit or loss as the accounting returns from underlying items. These accounting returns may be determined on a cost, amortised cost or fair value basis, depending on the accounting for underlying items. In our outreach with proponents of the book yield approach, we heard different views about how the accounting returns might be determined for some asset classes. The table below discusses how the book yield might be determined for the more common types of underlying items:

- (a) Assets at FVPL
- (b) Financial assets at amortised cost or FVOCI
- (c) Equity instruments at FVOCI
- (d) Investment properties at cost
- (e) A share of a business operation (eg, a combination of an investment performance, mortality experience and cost savings)

Underlying item	How proponents of the book yield approach would determine the discount rate	Staff comments
<p>Assets accounted at fair value through profit or loss</p> <p>Examples are financial assets and financial liabilities measured at fair value through profit and loss, and investment properties measured at fair value.</p>	<p>The discount rate would reflect the current yields of the underlying items.</p> <p>Some think that the current discount rates for the insurance liabilities (used for balance sheet measurement) may be a close enough approximation.</p>	<p>The staff agree that the current discount rate for the insurance liability may be a close enough approximation because the discount rate reflecting the characteristics of the liability would include the extent of the dependence on the underlying items, which is updated at every reporting period.</p>
<p>Financial assets accounted for at amortised cost and financial assets at FVOCI</p>	<p>The discount rate would be the effective interest rate of the bond. When bonds mature or are realised, and replaced by new bonds, the book yield would reflect that realisation.</p>	<p>The staff think that the book yield approach would be of particular use in reducing accounting mismatch for these underlying items, particularly when gains on these financial assets are realised.</p> <p>However, the book yield of underlying items measured at amortised cost or FVOCI should reflect the effect of the impairment requirements of IFRS 9 <i>Financial Instruments</i> (IFRS 9). To avoid accounting mismatches in profit or loss, the book yield rate for the insurance contract would also need to reflect the effect of those impairment requirements. However, because the entity would need to adjust the effective interest rate of the bond to reflect the effect of those impairment requirements, some entities might find this difficult in practice.</p>

Underlying item	How proponents of the book yield approach would determine the discount rate	Staff comments
Equity instruments at FVOCI	<p>There are different views on the book yield for such instruments. Proponents think that the discount rate for equity instruments held at FVOCI should be either:</p> <p>(a) a discount rate reflecting the expected dividend stream (eg dividends divided by the fair value of equity instruments); or</p> <p>(b) a risk-free-rate, because some think it is too difficult to estimate the discount rate based on the expected dividend stream discussed in (a).</p>	<p>The staff question whether either of the rates proposed would be useful:</p> <ol style="list-style-type: none"> 1. It does not appear useful to discount cash flows arising from equity instruments using a risk free rate because a risk-free rate does not reflect the investment income from the equity instruments. In addition, the staff note that using a risk-free rate may create an accounting mismatch because a risk-free rate is unlikely to reflect the same characteristics as the dividends recognised. 2. Although using a discount rate reflecting the expected dividend stream may result in matching between the dividends recognised in profit or loss for equity instruments at FVOCI, the entity would need to determine the book yield by dividing the expected dividend stream by the cost of the equity instrument (and not its fair value) to address accounting mismatch. This will require the entity to track the cost of those equity instruments. 3. In practice the returns passed to the policyholder from such equity instruments are likely to include either fair value gains and losses, or realised gains and losses on the sale of the equity instruments. Accounting mismatches would arise because those gains and losses are not included in the book yield rate that reflects the expected dividend stream. <p>The difficulties in determining a discount rate for equity instruments at FVOCI lead the staff to conclude that accounting</p>

Underlying item	How proponents of the book yield approach would determine the discount rate	Staff comments
		mismatch could only be reduced using a book yield approach if the entity applied FVPL to equity instruments held.
Investment property at cost	<p>There are different views on the book yield for such instruments. Proponents think that the discount rate for investment properties accounted for at cost should either be:</p> <p>(a) a discount rate that reflects the expected rent minus the expected defaults (eg, rent received or expected to be received divided by the investment property recognised at cost on the balance sheet); or</p> <p>(b) a risk-free-rate, because some think that the discount rate that reflects the rental yield as too complicated.</p>	<p>The staff thinks it is questionable how useful a risk-free rate would be for discounting cash flows arising from the rental income for the recognition of changes in the contract liability in profit or loss. In addition, applying a risk-free rate may create an accounting mismatch, because a risk-free rate is unlikely to reflect the same characteristics of the rental income recognised.</p> <p>The staff think that an entity could address accounting mismatches using rental yield only when policyholder benefits are based solely on rent. Using just the rental yield creates an accounting mismatch when the policyholder shares in both the rental yield and capital gains and losses of the investment property.</p> <p>Apart from when policyholders benefit only from a share of rental income, the staff thinks that an entity could address accounting mismatches using a book yield approach only if the entity accounted for investment property at FVPL.</p>
Underlying item is a share of a business operations (eg a combination of an investment performance, mortality and cost savings)	Some proponents would use consider only the projected returns arising from the investments.	In principle, the staff think that the entity will need to compute the discount rate by considering the appropriate discount rate for all the underlying items. For example, that discount rate could be determined by dividing the amount of net profit for the business operations by the net assets of the business operations for each year. Both the net profit and the net assets would be

Underlying item	How proponents of the book yield approach would determine the discount rate	Staff comments
		determined under IFRS.

(c) Construct a yield curve

24. Constructing a book yield term structure (yield curve) would require the following steps:
- (a) Calculate the accounting returns for underlying items held at the reporting date.
 - (b) Project the future accounting returns for underlying items held at the reporting date by reference to the duration of fixed income assets; the entity's realisation and reinvestment strategy; and market yield curves.
 - (c) Incorporate the effect of assets the entity expects to purchase with future premiums less those sold to fund claims
 - (d) Estimate returns on assets that replace underlying items that are expected to be derecognised, eg, when there is a mismatch between the duration of assets and liabilities
 - (e) Calculate the weighted average accounting returns for time periods of appropriate length in the remaining coverage period of participating contracts to construct the book yield curve
25. Entities would be required to maximise the use of current, relevant, observable inputs to estimate the book yields of replacement assets and assets purchased from the receipt of future premiums and reflect all available evidence, both external and internal.

(d) Adjust to eliminate any differences that arise on initial recognition of a contract

26. Discount rates used to measure contracts at initial recognition would generally reflect market rates at the date of initial recognition. However, the book yield of underlying items may differ from current rates. For example, in many cases, the premiums received from new policyholders will be used to settle claims on contracts with existing policyholders. At the same time, the entity would back those new contracts with underlying items that it already holds, ie the new

contracts would ‘inherit’ the underlying items acquired using the premiums paid by previous policyholders. The book yield of the ‘inherited’ underlying items will reflect market interest rates from the date the assets were purchased. Similarly, an insurer might not immediately invest cash received from policyholders, but might hold cash until a suitable opportunity for investment arises. This might be the case, for example, if the policy is very large or be part of a new tranche of policies for which it is not feasible to buy the underlying items immediately.

27. The following example illustrates, in these circumstances, application of a book yield approach, without further adjustment, could result in an amount recognised in OCI on the date of inception of a new contract.

Example: Effect that arises when different rates are used for presentation and measurement at inception

28. The following are the simplified assumptions:

- (a) The contract is a six-year insurance contract with a premium of CU1,000 paid at inception. The policy repays the premium and 90% of return on assets achieved.
- (b) No guaranteed rate of return on the contract.
- (c) Risk adjustment assumed to be immaterial.
- (d) The Contractual Service Margin (CSM) is released on a straight line basis over the contract term. It is assumed that there is no accretion of interest on CSM.
- (e) Yield curves are assumed to be flat. We assume that there is 0.5% difference between the liability and bond rates to illustrate the effects of when the book yield is a different rate to the discount rate used to measure the liability for balance sheet purposes. The following discount rates apply at inception:

Effective interest rate for Bonds	Book yield used for the presentation of interest expense	The liability discount rate used for the measurement
Underlying items	Insurance liability	Insurance liability
10.0%	10.0%	10.5%

- (f) The single premium of CU1,000 paid at contract inception is used to purchase a zero coupon bond of six year duration with an effective interest rate of 10% per annum.(ie the six year duration of the bonds is the same as the insurance liability). The bonds mature at CU1,771. The bonds are accounted for at FVOCI. It is assumed impairment losses are immaterial.
 - (g) The expected pay out to the policyholders at the end of Year 6 is CU1,694. This is determined from the return of premium of CU1,000 plus 90% of the expected returns of the underlying items (90% x (CU1,771-CU1,000)).
 - (h) There are no changes in assumptions over the life of the contract, including no changes in discount rates.
 - (i) There are errors arising from roundings.
29. If the book yield is applied at inception, the interest expense recognised in profit or loss for each period would be determined as follows:

	t ₀	t ₁	t ₂	t ₃	t ₄	t ₅	t ₆
Present value of cash flows determined at current liability rate, ie @10.5%	931 ³	1,028 ⁴	1,136	1,255	1,387	1,533	1,694
Present value of cash flows determined at Book Yield, ie @ 10%	956	1,052 ⁵	1,157	1,273	1,400	1,540	1,694
Equity (Accumulated OCI) ⁶	25 (Cr)	24	21	18	13	7	0
OCIΔ in Year		1 (Dr)	3	3	5	6	7
P/L interest expense in Year (Dr)		96 ⁷	105	116	127	140	154

30. If the book yield was applied at inception, there is an amount recognised in equity (accumulated OCI) at inception of CU25 The following journal entry on day-one demonstrates this.

Dr bank	1,000	Premiums received
Cr Insurance liability	931	fulfilment cash flows discounted using liability rate @10.5%
Cr OCI	25	Difference between fulfilment cash flows discounted using liability rate and book yield rate (CU931-CU956)
Cr Insurance liability CSM	44	Difference between premiums and the fulfilment cash flows discounted using the book yield rate (-CU1,000+ CU956)

31. Thus, applying the book yield approach results in the following features:

³ $t^0 = [CU1,694 / (1.105)^6]$

⁴ $t^x = [t^{x-1} \times (1+10.5\%)]$. For example, in $t^1 = [930 \times (1+10.5\%)]$

⁵ $t^x = [t^{x-1} \times (1+10\%)]$. For example, in $t^1 = [956 \times (1+10\%)]$

⁶ Present value of cash flows at 10.5% less present value of cash flows at 10%

⁷ t^x P/L interest expense = t^x book yield – t^{x-1} book yield. For example, in $t^1 = 1,052 - 956$

- (a) an amount is recognised directly in equity at contract inception (eg, CU25 in this example); and
- (b) to achieve this, the margin is reduced by the amount recognised in OCI, ie, the margin of CU44 shown above would have been CU69 if a book yield approach had not been applied (CU1,000 – CU931 = CU69).

32. Those features would not be present for contracts for which the book yield is not applied. The staff think both inconsistencies will be hard to explain to users of financial statements because they arise from mechanical differences. The staff note that recognising an amount in equity at contract inception is inconsistent with the principles in IFRS in general.

Eliminating Day 1 accumulated OCI

33. To address these issues, some of those that support the book yield approach suggest that at inception the book yield is assumed to be the discount rate used to measure the liability. This eliminates the Day 1 effect in OCI and the difference in the discount rate used to determine the CSM. However, that adjustment would need to be recognised in profit or loss in subsequent periods. The following example illustrates those mechanics and the effect on the financial statements.

34. At inception, the book yield is assumed to the liability rate which is 10.5%.

Therefore, using the example above, at inception:	CU
Fulfilment cash inflows (premiums)	1,000
Fulfilment cash outflows	931
Margin	69

35. The following illustrates the reset at the end of year 1 from the liability discount rate of 10.5% to the actual book yield of 10%. In this example, the catch-up is recognised in year 1:

CU	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Release of CSM	11.5 ⁸	11.5	11.5	11.5	11.5	11.5
Interest income – EIR – 10%	100	110 ⁹	121	133	146	161
Catch up as book yield move from 10.5% to 10% [931 to 956]	(25)					
Interest expense – 10%	(96)	(105)	(116)	(127)	(140)	(154)
Net interest income	(21)	5	5	6	6	7
Profit	(10)	17	16	18	17	19
Movements in OCI						
Assets						
Liabilities	24	(3)	(3)	(5)	(6)	(7)
Net movement in OCI	24	(3)	(3)	(5)	(6)	(7)
Total Comprehensive Income	14	14	13	13	11	12

Book yield as proposed by the staff

36. The staff proposes that, in future discussions, the IASB should consider only a book yield approach in which the book yield minimises accounting mismatches with underlying items. As a consequence, the staff’s proposed book yield approach would:

- (a) not be permitted when (i) equity instruments are measured at FVOCI, and (ii) investment properties are measured at cost and the policyholder receives a share of capital gains – see table in paragraph 23, because the book yield approach does not minimise accounting mismatches in these circumstances;
- (b) be permitted when underlying items are, for example:
 - (i) when the bonds accounted for at cost, FVOCI, or FVPL (in accordance with IFRS 9), provided that entities reflect in the book yield the effect in profit or loss of expected credit losses on the bonds accounted for at cost or FVOCI. For example, if the underlying items are bonds accounted for at amortised cost or FVOCI, the adjustment to the book yield

⁸ The margin between the cash inflows and outflows over 6 years. Release of CSM = 69 / 6

⁹ Based on the 10% effective interest rate. For example, Year 2 interest income = 100 x 1.1

approach should be consistent with the impairment requirements of IFRS 9.

- (ii) when the investment properties accounted for at cost when policyholders only benefit from a share of rental income; and
 - (iii) when the underlying items are accounted at FVPL.
- (c) ensure that at inception of the contract, the yield curve for the presentation of the unwind of the discount that would be recognised in profit or loss is the same as the yield curve used for the measurement of the liability on the balance sheet. The effect of the difference in those yield curves immediately after inception would be recognised as a gain or loss in profit or loss in subsequent periods (as discussed in paragraphs 26 to 35).

37. (The book yield approach discussed in the following Agenda Papers 2B-2D refer to the staff's proposed book yield approach as described above in paragraph 36.)

Question 1: Book yield approach

Do you have any questions or comments on the book yield approach, or the staff's proposed book yield approach?

Effective yield approach

38. Paragraphs 39 to 66 describe the two versions of the effective yield approach and the staff's recommendations in respect of a version to take forward to further consideration by the Board.
39. The effective yield approach is a form of the effective interest method which is used to calculate the amortised cost of financial instruments and to allocate the interest income or interest expense in profit or loss. This approach would mean that profit or loss would isolate the underwriting result, while changes in market interest rates would be presented in OCI. Proponents of the OCI approach believe that in some circumstances such information provides relevant information that can be used to predict expected cash flows. The FASB proposed an effective yield approach to resetting interest accretion rates for insurance contracts with discretionary participation features in the Proposed Accounting Standards Update *Insurance Contracts* that was issued in June 2013. In the feedback on the comment letters, some constituents suggested a modified version of that approach for determining interest expense in profit or loss. This paper considers that modified version, as described in paragraphs 53 - 60.
40. The paragraphs below consider two variations of the effective yield approach:
- (a) The level yield method (paragraphs 41-52); and
 - (b) The projected crediting method (paragraphs 53 - 60).

Level yield method

41. An effective yield, in its simplest form, is calculated on initial recognition of a contract as a single rate that exactly discounts estimates of expected future cash flows to the carrying amount of the liability determined on an amortised cost basis at the reporting date.
42. The effective yield is reset when there are changes in amounts expected to be paid to policyholders due to changes in estimated investment returns. The reset effective yield is the rate required to accrete amortised cost liabilities measured immediately prior to a change in estimated cash flows to equal the revised

expected cash flows when they take place on a level basis. The effective yield is indirectly affected by the returns on underlying items because the expected cash flows that are discounted reflect estimated returns on the underlying items.

43. As noted in paragraph 39, the FASB proposed an effective yield approach for determining interest expense. The approach proposed was a level yield method. However, the feedback on that approach noted that a level yield method would result in a mismatch between interest expense on liabilities and the corresponding pattern of investment returns from assets when the duration of the assets is shorter than the duration of the liabilities. This is because the interest expense on the liabilities would reflect immediately the entity's expectations of investment returns throughout the remaining duration of the contract. In contrast, the corresponding asset returns would be reported more slowly in profit or loss as the composition of investment portfolios change. Some believe that the resulting mismatch in profit or loss does not provide useful information. This effect is illustrated in an example below.

Example

44. Consider a 10 year contract in which a policyholder pays a premium of CU1,000 at the date of initial recognition (t_0). The entity maintains an account balance for the policyholder into which it credits amounts based on the interest earned on underlying debt securities determined on an effective interest rate (EIR) basis. It is the entity's policy to maintain a 1% spread between the EIR of assets and the rate at which amounts are credited to the policyholder's account.
45. At t_0 market interest rates are 5% per annum. The entity's expectation for crediting rates and the account balance are as follows:

ORIGINAL EXPECTATIONS AT T ₀					
Year	Market yield	Asset EIR	Pricing spread	Projected credit rates	Account balance CU
0	5.0%	5.0%	1.0%	4.0%	1,000
1	5.0%	5.0%	1.0%	4.0%	1,040
2	5.0%	5.0%	1.0%	4.0%	1,082
3	5.0%	5.0%	1.0%	4.0%	1,125
4	5.0%	5.0%	1.0%	4.0%	1,170
5	5.0%	5.0%	1.0%	4.0%	1,217
6	5.0%	5.0%	1.0%	4.0%	1,265
7	5.0%	5.0%	1.0%	4.0%	1,316
8	5.0%	5.0%	1.0%	4.0%	1,369
9	5.0%	5.0%	1.0%	4.0%	1,423
10	5.0%	5.0%	1.0%	4.0%	1,480

46. The balance sheet liability at contract inception (t_0) is the expected payment at t_{10} of CU1,480 discounted at the current market rate at contract inception, ie 5%. This is CU909 ($CU1,480/1.05^{10}$). If there were no changes in market interest rates, then it is likely that the entity would not change the amount that it expects to credit to the policyholder's account balance. In that case, the expected cash flow would not change and the balance sheet liability at t_2 would be CU954 [ie, (909×1.05) or $(1,480/1.05^9)$].
47. At t_1 market interest rates fall to 3% per annum. The effective interest rate of the underlying bonds is projected to decline from 5% to 3% over a four year period due to the duration and mix of assets.

REVISED EXPECTATIONS AT T ₁					
Year	Market yield	Asset EIR	Pricing spread	Projected crediting rates	Account balance CU
0	5.0%	5.0%	1.0%	4.0%	1,000
1	3.0%	4.5%	1.0%	3.5%	1,040
2	3.0%	4.0%	1.0%	3.0%	1,076
3	3.0%	3.5%	1.0%	2.5%	1,109
4	3.0%	3.0%	1.0%	2.0%	1,136
5	3.0%	3.0%	1.0%	2.0%	1,159
6	3.0%	3.0%	1.0%	2.0%	1,182
7	3.0%	3.0%	1.0%	2.0%	1,205
8	3.0%	3.0%	1.0%	2.0%	1,230
9	3.0%	3.0%	1.0%	2.0%	1,255
10	3.0%	3.0%	1.0%	2.0%	1,280

48. The effective yield at t_0 is 5% per annum – as this is the rate at which the liability at initial recognition accretes to the expected cash flow to the policyholder

(CU1,480) when the policy matures at t_{10} [$^{10}\sqrt{(1,480/909)}=1.05$, ie, the opposite of the calculation of the balance sheet liability] . The effective yield is reset at t_1 when expected cash flows change due to a change in estimated investment returns. The revised effective yield, when calculated on a level yield basis, is the single rate at which amortised cost liabilities (CU954 at t_1) brought forward would accrete to the revised final expected payment to the policyholder of CU1,280 at t_{10} , i.e., ${}_9\sqrt{(1,280/954)} = 1.0332$ or 3.32% pa.

49. The current value and amortised cost liabilities over the 10 year life of the contract are shown in the following table. The table also shows the difference between them – which would be reported in accumulated OCI.

Year	B/S liability (original)	B/S liability (revised)	Eff' yield (level)	Amortised Cost liability (original)	Amortised Cost liability (revised)	Accum' OCI (revised)
0	909	909	5.00%	909	909	
1	954	981	3.32%	954	¹⁰ 954	27
2	1,002	1,010	3.32%	1,002	¹¹ 986	24
3	1,052	1,041	3.32%	1,052	1,019	22
4	1,105	1,072	3.32%	1,105	1,052	20
5	1,160	1,104	3.32%	1,160	1,087	17
6	1,218	1,137	3.32%	1,218	1,123	14
7	1,279	1,171	3.32%	1,279	1,160	11
8	1,343	1,206	3.32%	1,343	1,199	7
9	1,410	1,243	3.32%	1,410	1,239	4
10	1,480	1,280		1,480	1,280	0

50. If we assume that:

- (a) the premium of CU1,000 is invested at t_0 in four bonds each with an EIR of 5% but with maturity dates at t_1 , t_2 , t_3 and t_4 (CU250 in each); and
 - (b) maturity amounts are reinvested in bonds that have a 3% EIR;
- the average EIR of the bonds in Years 1 to 5 would be 5%, 4.5%, 4%, 3.5% and 3% respectively.

51. The summarised statements of total income in Years 1 to 10 would be as follows:

¹⁰ $909 \times 1.05 = 954$

¹¹ $954 \times 1.0332 = 986$

CU	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Interest income	50	47	44	40	35	36	38	39	40	41
Interest expense	¹² 45	¹³ 32	33	33	35	36	37	38	40	41
Profit	5	15	11	7	0	0	1	1	0	0
<i>Change in OCI</i>										
Assets	31	-15	-10	-6	0	0	0	0	0	0
Liability	-27	3	2	2	3	3	3	4	3	4
Net OCI	4	-12	-8	-4	3	3	3	4	3	4
Comprehensive income	9	3	3	3	3	3	3	4	3	4

52. Thus, investment income on an amortised cost basis and interest expense on a level effective yield basis would respond in a different pattern over time to a change in market interest rates and effective yields. There is a disconnect between the interest expense recognised in profit or loss and the crediting amounts to the policyholder. For example, interest expense drops significantly in Year 2 whereas investment income (on an amortised cost basis) reduces gradually over four years to 3% pa.

Projected credit approach to effective yield

53. To eliminate the problem illustrated in paragraphs 44-52, some constituents suggest that, instead of a level yield approach, which determines the effective yield assuming a level basis, an entity should instead calculate discount rates on a basis that reflects the entity’s projected crediting rates (ie the rates that the entity intends to use to determine the policyholder cash flows).

54. Many contracts with participating features include an explicit or implicit account balance that determines amounts payable to policyholders. Account balances typically reflect the following items:

- (a) premium receipts;

¹² Based on movement in the amortised cost liability, 909-954=-45

¹³ 954-986=-32

- (b) the deduction of charges; and
- (c) amounts credited to the contract that represent the policyholder's share of returns on underlying items (sometimes referred to as bonuses).
55. They propose that the entity should apply a constant adjustment (or spread) to the projected crediting rates (ie those amounts that are credited to the policyholder's account balance as discussed in paragraph 54(c)). The effective yield, and hence interest expense, is driven by crediting rates. Those rates in turn reflect expected accounting returns on assets over time. Thus, an approach that reflects the projected crediting rates should result in interest expense that would be more closely matched to investment income, compared to applying a level yield approach.
56. Effective yield on a projected credit basis can be calculated in more than one way. In this example we demonstrate an approach in which projected crediting rates (CR) are multiplied by a constant amount (K).
57. Using the above example, the product of the effective yields multiplied by the amortised cost liability at t_1 (CU954) needs to equal the expected payment to policyholders of CU1,280 as follows:

$$954 \times (CR_2 \times K) \times (CR_3 \times K) \times (CR_4 \times K) \times \dots \times (CR_9 \times K) \times (CR_{10} \times K) = 1,280$$

$$K = \sqrt[9]{((1,280/954)/(CR_2 \times CR_3 \times \dots \times CR_9 \times CR_{10}))}$$

$$K = 1.009615$$

CR_T is the projected crediting rate for a year, eg, CR_2 is the projected crediting rate for Year 2, i.e., 1.035 or 3.5%.

58. The effective yield rates, the revised amortised cost liabilities, etc, over time are as follows

Year	Projected credit fwd rates (revised)	Eff' yield (curve)	Amortised Cost liability (original)	Amortised Cost liability (revised) EY curve	Current value B/S liability (revised)	Accumulated OCI (revised) EY curve
0	4.0%	5.00%	909	909	909	0
1	3.5%	¹⁴ 4.49%	954	954	981	27
2	3.0%	3.99%	1,002	¹⁵ 997	1,010	13
3	2.5%	3.49%	1,052	¹⁶ 1,037	1,041	4
4	2.0%	2.98%	1,105	1,073	1,072	-1
5	2.0%	2.98%	1,160	1,104	1,104	0
6	2.0%	2.98%	1,218	1,138	1,137	-1
7	2.0%	2.98%	1,279	1,172	1,171	-1
8	2.0%	2.98%	1,343	1,207	1,206	-1
9	2.0%	2.98%	1,410	1,243	1,243	0
10	2.0%		1,480	1,280	1,280	0

59. Summarised statements of income in Years 1 to 10 on this basis are as follows:

CU	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Interest income	50	47	44	40	35	37	38	39	40	41
Interest expense	45	43	40	36	31	34	34	35	36	37
Profit	5	4	4	4	4	3	4	4	4	4
<i>Δ in OCI</i>										
Assets	31	-15	-10	-6	0	0	0	0	0	0
Liability	-27	14	9	4	0	0	0	0	0	0
Net OCI	4	-1	-1	-2	0	0	0	0	0	0
Comprehensive income	9	3	3	3	3	3	3	4	3	4

60. The staff note:

- (a) Total income and profit over the 10 years are the same as before (subject to roundings).
- (b) Interest expense follows the pattern of the projected crediting rates and, because crediting rates are linked to expected accounting yield from assets on an EIR basis, interest expense matches investment income more closely than under the level yield approach.

¹⁴ $1.035 \times 1.009615 = 1.0449$ or 4.49%

¹⁵ $954 \times 1.0449 = 997$

¹⁶ $997 \times 1.0399 = 1,037$

Potential for further refinements to effective yield

61. As noted in paragraph 42, effective yield is indirectly affected by returns on underlying items. However it lacks the direct relationship to those returns that is the key feature of the book yield approach. As we illustrate in Scenarios 3 and 4 in the examples within Agenda Paper 2B, accounting mismatches between interest expense and investment income can arise when an effective yield approach is applied in circumstances where:

- (a) underlying items are a mix of assets measured at FVPL and cost; and
- (b) underlying items measured at cost are sold and a realised gain or loss is presented in profit or loss – without a corresponding change in amounts credited to policyholders.

The staff note that the effective yield approach could be amended to mitigate the effects of these accounting mismatches as discussed in the following paragraphs.

Mix of underlying items

62. In some cases, a portfolio of contracts with participating features are backed by a mixture of underlying items accounted for at FVPL or cost. When this is the case, accounting mismatches could be avoided by modifying the effective yield approach so that it reflects the underlying asset mix. To do this the entity would need to determine a weighting between locking-in the discount rate using the effective yield approach and the current discount rate. For example, the entity determines that 30% of underlying items that back insurance contracts are accounted for at cost and 70% at FVPL. The discount rate used for the presentation of interest expense would be an average weighted 70:30 respectively of the current discount rate used to measure the liability and the locked-in discount rate determined using the effective yield approach.

Realisations of underlying items measured at cost or amortised cost

63. The effective yield approach does not necessarily reflect the timing of the realisation of underlying items measured at cost. As a result, accounting mismatches may arise when gains and losses are recognised in profit or loss on realisation of underlying items measured at cost. To avoid such accounting mismatches, the effective yield approach could be modified to eliminate the

timing difference that arise between when the underlying items reports gains and losses in profit or loss and when those gains and losses are passed on to the policyholder. To do this, the entity would need to reset the effective interest to both report an appropriate gain and loss in profit or loss to offset the gain and loss reported on the sale of the underlying item and to unwind the gains and losses recorded in equity (sometimes accumulated OCI) over the life of the contract.

64. However, in the staff's view, such amendments would increase the complexity of determining the effective yield.
65. Therefore, on balance, staff do not recommend that the effective yield approach is modified as described in paragraphs 62 and 63.

Effective yield proposed by the staff

66. The staff are recommending the projected crediting version of effective yield (as discussed in paragraphs 53 to 60) because of its ability to reduce mismatches between investment income and interest expense when there are changes in estimates. The staff think that interest expense based on crediting rates is closer to an incurred cost view of interest expense as well as being more likely to mirror investment income when it is accounted for on an amortised cost basis.
67. (The effective yield approach discussed in the following Agenda Papers 2B-2D refer to the staff's proposed effective approach, the projected crediting version as described above in paragraph 66.)

Question 2: Effective yield approach

Do you have any questions or comments on the effective yield approach, or the staff's proposed effective yield approach?