



Hans van der Veen	hvanderveen@iasb.org	+44 (0)20 7246 6464
Alessandro d'Eri	aderi@iasb.org	+44 (0)20 7246 6495
Mark Trench	metrench@fasb.org	+1(0) 203 956 3455
Jeffrey Cropsey	jdcropsey@fasb.org	+1(0) 203 956 5305

Project **Insurance Contracts**

Topic **Application of risk adjustment and residual margin**

Purpose of this paper

1. This paper discusses the risk adjustment and residual margin included in one of the proposed measurements for insurance contracts. Specifically, this paper provides information about how refining the objective for a risk adjustment under the proposed measurement might narrow or put discipline around the methodology or methodologies used to determine a risk adjustment. This paper also provides a follow-up discussion about residual margins to address some of the concerns raised by Board members during the discussion at the joint March Board meeting.
2. As noted, this paper only addresses one of the proposed measurement approaches for insurance contracts. The other measurement approach, an approach that would use a single composite margin (as opposed to a risk adjustment plus a residual margin), is discussed in Agenda Paper 3B (FASB Memorandum No. 43B). Both approaches are being developed for discussion at the joint April Board meeting.
3. The staff does plan to ask for the Boards to make decisions with regard to further clarifying the two proposed measurement approaches during the April joint meeting. The staff will not be seeking a decision on which measurement approach should be used for insurance contracts before an extra board meeting early May to allow for an appropriate amount of time for the Board's consideration of the two approaches.

This paper has been prepared by the technical staff of the FASB and the IASCF for discussion at a public meeting of the FASB or the IASB.

The views expressed in this paper are those of the staff preparing the paper. They do not purport to represent the views of any individual members of the FASB or the IASB.

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Summary of Staff recommendations

4. The staff asks the Boards for direction on the proposed objective and other draft guidance for the risk adjustment.
5. With regard to residual margin, the staff recommends:
 - (a) that the residual margin is part of the insurance liability rather than a separate liability outside the insurance liability.
 - (b) an insurer should disclose the amount of the residual margin.
 - (c) some staff recommend that interest be accreted on the residual margin while other staff members recommend that interest not be accreted on the residual margin.

Structure of the Paper

6. The rest of this paper is divided into the following sections:
 - (a) Background (paragraphs 8 through 11)
 - (b) Risk adjustment (paragraphs 12 through 36)
 - (i) The objective of a risk adjustment (paragraphs 12 through 17)
 - (ii) How would the objective for a risk adjustment be applied? (paragraphs 18 through 20)
 - (iii) Does the objective for a risk adjustment limit the types of risk adjustment methodologies? (paragraphs 21 through 32)
 - (iv) Comparability through disclosures (paragraphs 33 through 36)
 - (c) Residual margin (paragraphs 37 through 47)
 - (i) Is the residual margin part of the insurance liability? (paragraphs 38 through 42)
 - (ii) Should interest be accreted on the residual margin? (paragraphs 43 through 47)
7. This paper does not discuss the role of diversification in estimating the risk adjustment. Agenda paper 3C (FASB Memorandum 43C) deals with this.

Background

8. At the joint meeting in March, the staff presented the Boards with an analysis on the topic of risk adjustments in Agenda Paper 6D (FASB Memorandum No. 41D). That paper provided a high-level description of some methodologies that could be used to determine a risk adjustment. The staff recommendation in that paper was not to require a particular method for determining a risk adjustment because it is a developing area and one methodology did not appear to be superior to the others. Some Board members were uncomfortable with the amount of judgment in selecting a risk methodology and the resulting lack of comparability. At the March meeting:
 - (a) The IASB decided tentatively that:
 - (i) The measurement of an insurance contract should include a separate risk adjustment.
 - (ii) The risk adjustment should be the amount the insurer would rationally pay to be relieved of the risk [the objective proposed for the risk adjustment used in the IASB's recent Exposure Draft, *Measurement of Liabilities in IAS 37*].
 - (b) The FASB decided tentatively that the measurement of an insurance contract should not include a separate risk adjustment. Instead, the measurement should include one single composite margin.
9. This paper addresses the further development of a separate risk adjustment (the IASB's tentative decision) and how the objective used in the IASB's recent Exposure Draft on IAS 37 might be used for insurance contracts. In addition, the staff demonstrate the application for two specific types of methodologies (a cost of capital methodology and a quantile methodology) in Appendix A.
10. At the joint meeting in March, the boards also discussed how the insurer should subsequently release the residual margin to profit or loss (at inception the residual margin equals the difference between (a) the expected premiums and (b) the expected claims and expenses plus a risk adjustment). The boards tentatively decided that the insurer should release the residual margin over the coverage period in a systematic way that best reflects the exposure from providing insurance coverage, as follows:

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- (a) on the basis of passage of time; but
- (b) if the insurer expects to incur benefits and pay claims in a pattern that differs significantly from passage of time, the residual margin should be released on the basis of the benefits and claims, as expected at inception.

11. Some issues remain related to the residual margin (especially for long-term insurance contracts). These issues include:

- (a) Is the residual margin part of the insurance liability?
- (b) Should interest be accreted on the residual margin?

Risk adjustment

The objective of a risk adjustment

12. In January 2010, the IASB issued an Exposure Draft on *IAS 37 Provisions, Contingent Liabilities and Contingent Assets*. The staff has reproduced relevant extracts in Appendix B of this paper for reference.
13. The issues and concerns raised in the exposure draft on IAS 37 parallel the issues and concerns being currently dealt with in the insurance contracts project. That is, a robust exit market for insurance contracts currently does not exist but there is a need for discipline surrounding the measurement. One key aspect of the proposed IAS 37 approach is highlighted in paragraph B15. Paragraph B15 states that:
- B15 An entity shall consider the risk that the actual outflows of resources might ultimately differ from those expected. A risk adjustment measures the amount, if any, that the entity would rationally pay in excess of the expected present value of the outflows to be relieved of this risk.
14. The focus of the measurement is on the entity's perspective rather than a market participant. The staff believes that this approach to the risk adjustment provides an appropriate level of discipline while at the same time does not result in entities having to determine the characteristics of a hypothetical market (that is, entities would not have to conduct a "search and destroy" mission aimed at ensuring that every input is consistent with the perspective of market participants).
15. Like the measurement in the exposure draft on IAS 37, the proposed insurance contracts measurement includes a risk adjustment intended to convey useful

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information about the uncertainty in the remaining cash flows. This adjustment would depict the **insurer's** view of uncertainty. The risk adjustment in the IAS 37 measurement is based on the amount the entity would rationally pay to be relieved of this risk. If applied in the context of insurance contracts, because an insurer often would not be able to identify observable market information about risk adjustments, the insurer would have to estimate the amount it would rationally pay to be relieved of this risk based on fulfilling the remaining obligation. Said differently, the risk adjustment would reflect the amount by which insurer's financial position would be improved if it would not have the risk. Consequently, that amount is integral to the value the insurer places on the requirement to fulfil the obligation.

16. However, the staff does acknowledge that more information will be needed in describing the risk adjustment for insurance contracts than in IAS 37 because that adjustment is integral to the business of insurance (see the Appendix B in Agenda Paper 6D [FASB Memorandum No. 41D] that provides factors for determining a risk adjustment).

Staff recommendation

17. The staff has provided the following draft language for an objective for a risk adjustment to further the discussion about the use of risk adjustments in the measurement of insurance contracts. The objective for the risk adjustment would be:

The amount the insurer would rationally pay to be relieved of the risk.

An entity shall consider the risk that the actual cash flows might ultimately differ from those expected. A risk adjustment measures the amount, if any, that the entity would rationally pay to be relieved of this risk.

The objective of including a risk adjustment in the measurement of an insurance contract is to convey useful information to users about the uncertainty associated with the contract. To achieve that objective the estimate of the risk adjustment should consider the effects of uncertainty about the amount and timing of future cash flows. Because an insurer often would not be able to identify observable market information about risk adjustments, the entity would have to estimate the amount it would rationally pay to be relieved of this risk.

To convey useful information about the amount the insurer would rationally pay to be relieved of risk, the characteristics of that risk adjustment shall, to the extent practicable, include the following:

- (a) The less that is known about the current estimate and its trend, the higher the risk adjustment should be.
- (b) Risks with low frequency and high severity will have higher risk adjustments than risks with high frequency and low severity.

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- (c) For similar risks, long duration contracts will have higher risk adjustments than those of shorter duration.
- (d) Risks with a wide probability distribution will have higher risk adjustments than those risks with a narrower distribution.

Furthermore, an insurer should select an approach for determining risk adjustments that considers the following factors:

- (a) Numerous techniques exist for determining the risk adjustment. The selection of the appropriate method may vary between types of insurance contracts and different entities. Judgment must be applied in determining the appropriate method for each type of insurance contract. Various techniques are available and the use of the methods may vary by product. For example, one potential method could focus on a particular confidence level, such as the quantile method. Another method is based on cost of capital, acknowledging that an insurer's ability to sell new business to policyholders depends on holding sufficient capital to enable it to cope with adverse events.
- (b) Risk adjustments should be explicit, not implicit. That is an important change from many existing practices that rely on estimates incorporating an implicit (and often unstated) degree of conservatism or prudence. Separating explicit estimates of future cash flows from explicit risk adjustments would improve the quality of estimates and enhance transparency.
- (c) The risk adjustment for an insurance liability should reflect all risks associated with the liability.
- (d) The risk adjustment for an insurance liability should not reflect risks that do not arise from the liability, such as investment risk (except when investment risk affects the amount of payouts to policyholders), asset-liability mismatch risk, or general operational risk relating to future transactions.
- (e) The approach should be implementable at a reasonable cost and in a reasonable time, and be auditable.
- (f) The approach should not ignore the tail risk in contracts with very skewed pay-offs, such as contracts that contain embedded options (eg the interest guarantees and other financial guarantees embedded in many life insurance products) or that cover low-frequency high-severity risks (such as earthquake), or portfolios that contain significant concentrations of risk. For example, if a large portfolio of insurance contracts is subject to significant earthquake risk but the insurer estimates that the probability of an earthquake is only 1 per cent, the approach should not ignore that risk.¹ Option-pricing methods or stochastic modelling may be needed to provide effective estimates of the risk adjustments associated with these items.

¹ The tail risk affects both (1) the expected cash flows and (2) the risk adjustment required for possible variations from the expected cash flows. Estimates of expected cash flows need to capture the effect that tail risk has on (1). The risk adjustment needs to capture the effect of tail risk on (2).

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- (g) The approach should make it easy to provide concise and informative disclosure, and for users to benchmark the insurer's performance against the performance of other insurers.
- (h) If more than one approach is compatible with the above criteria, it is preferable to select an approach that builds on models that insurers use (or are developing) to run their business.
- (i) The approach should not overlook model risk (the risk that a model is not a good description of the underlying process) or parameter risk (the risk that a model uses estimates of parameters that differ from the true parameters, or that the parameters may change over time).

Caution is needed in making judgments under conditions of uncertainty, so that liabilities are not understated. However, uncertainty does not justify deliberate overstatement of liabilities. Care is needed to avoid duplicating adjustments for risk with consequent overstatement of the liability.

Although the risk adjustment is included in the measurement as conceptually separate from the other building blocks (expected cash flows, discount rate), this is not intended to preclude 'replicating portfolio' approaches. A replicating portfolio is a portfolio of assets whose cash flows **exactly** match those contractual cash flows in amount, timing and uncertainty. If a replicating asset exists for all (or, more likely, some) of the cash flows, the insurer can include the fair value of these assets in the measurement of the insurance contract, instead of estimating the expected present value of those cash flows and determining an explicit risk adjustment for those cash flows. To avoid double counting, the risk adjustment does not include any risk that is captured in the replicating portfolio.

Question for the boards

Do the boards agree directionally with the proposed objective and the other draft language? Do the boards have any suggestions to further strengthen the objective and other draft guidance for a risk adjustment?

How would the objective for a risk adjustment be applied?

18. The objective for a risk adjustment based on the amount an insurer would rationally pay to be relieved of the risk can be dissected in the following way. The phrasing *the amount the insurer* indicates that the approach is from an entity's perspective as opposed to a market participant's view. As previously discussed in paragraph 13, this approach has the benefit of avoiding the need to consider hypothetical markets where no observable market exists. However, some have pointed out that relying on an entity's perspective creates too much judgment in the measurement. The next part of the objective helps to mitigate this concern.
19. Even though applied in the context of an overall fulfillment objective for the measurement, phrasing the objective for the risk adjustment as *rationally pay to be relieved of the risk* means the insurer points at a price-estimate for the risk relating

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to a possible transfer of insurance contracts to another insurer. The insurer would therefore be required to consider factors that are relevant in determining the amount that it would rationally pay when transferring the risk to another (re)insurer. In this respect staff wants to emphasize the importance of the four characteristics of a risk adjustment that are included in the proposed guidance. They provide a framework that the insurer would have to consider, both in selecting the particular method that it applies and determining the inputs. For example, a confidence interval approach may not be able to reflect adequately the characteristic that risks with low frequency and high severity will have higher risk adjustments than risks with high frequency and low severity.

20. A market that can provide input for what the insurer would rationally pay to be relieved of the risk is the reinsurance market. In most instances, the reinsurance market does not provide information on the exit value of a contract because an actual legal transfer does not occur. But the reinsurance market could be considered in determining inputs about transferring risk associated with a contract:

- (a) Insurers use the reinsurance markets to spread their risk and free capital for redeployment (that is, writing new business). Since the insurer is a party to the reinsurance agreement, it is aware of reinsurance pricing and what reinsurers will charge. In fact, many primary insurers (direct writers) are also reinsurers (referred to as *assumed business*). Consequently, not only are many insurers selling reinsurance, they are also buying reinsurance. This places many insurers (and reinsurers) in the position of seeing both sides of the market and having an in-depth understanding of those markets and the compensation related to different levels of uncertainty.
- (b) The reinsurance market is also subject to changes in economic conditions (often referred to as *hard markets* (favorable pricing) and *soft markets* (highly competitive)). Reinsurance markets are subject to current economic conditions and as such provide a level of discipline (that is, changes in the economic environment cannot be ignored by the reinsurance markets and therefore the views of these participants in the reinsurance market are reflected in the pricing).

Does the objective for a risk adjustment limit the type of risk adjustment methodologies?

21. In this section, the staff discusses how each class of risk methodology discussed in March in Agenda Paper 6D (FASB Memorandum No. 41D) could be rationalized (or not) in the context of an objective for the risk adjustment based on the amount the insurer would rationally pay to be relieved of the risk. The classes of risk methodologies are:

- (a) Explicit assumption (for example, factor-based or judgment based on experience studies)
- (b) Cost of capital
- (c) Quantile (for example, value at risk or Conditional Tail Expectation)
- (d) Discount rate (for example, risk adjusted returns and deflators)
- (e) Sensitivity/stress test
- (f) Stochastic modeling
- (g) Calibrate to capital markets or insurance pricing

Explicit assumption methods

22. These methods can be best described as being based off of the actual assumptions (unbiased estimates used in determining the expected present value of the cash flows). That is, the risk adjustment is the function of a percentage or limitation (for example, a minimum or maximum amount) of the assumption. One example is specifying a particular mortality table and then adjusting the mortality table by 5% to reflect the risk. Another example would be to assign a percentage by line of business; the riskier lines of business would have a higher percentage.

23. Explicit assumption methods as described in the paragraph above do not seem to meet the risk adjustment objective because those methods focus on conservatism rather than reflecting the amount the insurer would rationally pay. This is particularly the case if explicit assumptions are applied as unconnected sets of assumptions without an underlying rationale. Simply increasing or decreasing an assumption by a fixed percentage is not responsive to changing risk conditions (for example, reinsurance pricing). In addition, explicit assumption methods, if applied at an individual assumption level, would not consider diversification (see agenda

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paper 3C [FASB Memorandum No. 43C] for a discussion of diversification) and potentially overstate or understate what an insurer would rationally pay (that is, an insurer's analysis might not focus solely on individual assumptions when determining what it would rationally pay). It is therefore unlikely that explicit assumption methods will be able to adequately reflect what an insurer would rationally pay.

Cost of capital methods

24. Cost of capital methods attempt to reflect in the risk adjustment the cost of bearing risk. In its simplest form, cost of capital is the cost of an entity's funds—that is, the estimated cost of holding the capital that is needed to give policyholders comfort that valid claims will be paid, and to comply with regulatory capital requirements, if any.
25. In the context of the amount that an insurer would rationally pay to be relieved of the risk, costs of capital methods would be compatible with that objective. Insurance is a capital intensive business and an insurer is cognizant of off-loading risk to free capital for redeployment (especially when pricing is favourable). Accordingly, an insurer would be able to determine the amount of capital necessary to support a portfolio or line of business over time because it is required to do so for internal reporting as well as regulatory capital requirements. However, in estimating the amount that it would rationally pay, an insurer would probably need to refer to economic capital rather than regulatory capital because regulatory capital can be distorted by specific regulatory requirements that may not be considered *rational* in the context of general-purpose reporting (that is, the regulators main concern is solvency as opposed to profitability).

Quantile methods

26. While several quantile methods were discussed in Agenda Paper 6D (FASB Memorandum No. 41D), the most promising method appeared to be Conditional Tail Expectation (CTE) (also referred to a Tail Conditional Expectation and Tail value at risk) rather than to a confidence interval approach (such as value at risk). CTE provides a better reflection of the potentially extreme losses than value at risk by incorporating the expected value of those extreme losses in the measure of the risk adjustment. The Society of Actuaries' paper *Analysis of Methods for*

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Determining Margins for Uncertainty under a Principle-Based Framework for Life Insurance and Annuity Products provides the following description:

...With the CTE method, the margin is calculated as the probability weighted average of all scenarios in the chosen tail of the distribution less the mean estimate (which may or may not be the median, i.e. the 50th percentile). The CTE method is an improvement over the percentile (VaR) method discussed above since it smoothes some extreme claims (or statistical outliers).

The key advantage of the CTE is that since it applies fundamentally the same calculation technique as the mean estimate, it has the benefit of consistency and it also reflects the skew of the distribution in the risk margin. For example, the CTE over the 75% confidence level (often referred to as CTE(75)) of a claim distribution is the expected value of all claims that fall into the highest 25% of the claim distribution. The margin in this case would be taken as CTE (75) less the mean (i.e. best estimate) of claims.

27. The focus of a CTE method on the tail reflects a fundamental aspect of insurance—the fact that the riskiest part of an insurance contract is the tail. As part of the analysis of the amount an insurer would rationally pay, a significant amount of consideration would be given to the tail of the risk (that is, the loss distribution). Consequently, CTE methods would meet the objective for a risk adjustment described in this paper. However, a confidence interval (such as value at risk) approach still may meet the objective if distributions are not particularly skewed.

Discount rate methods

28. Discount rate methods use adjustments to the discount rates to reflect the risk adjustment. In the case of a liability, the discount rate would be lowered creating a larger liability. The lowering of the discount rate implicitly creates the risk adjustment. Consequently, when determining the amount that an insurer would rationally pay, an insurer generally does not consider adjustments to discount rates. A method based on adjustments to discount rates is more appropriate for financial instruments where markets exist and can be observed. Generally no secondary market exists for insurance contracts and prices in the primary market may not be readily observable. A discount rate method may provide a reasonable indication of the pattern of release from risk if risk is directly proportional to the amount of the liability and the remaining time to maturity. However, insurance liabilities do not always have these characteristics. Consequently, a risk adjustment based on a discount rate is unlikely to meet the objective of the risk adjustment.

Stress/Sensitivity testing

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29. As the name implies, this method is comprised of stressing the underlying assumptions and determining how the changes in the assumptions impact the expected claim payments or capital. In determining the amount an insurer would rationally pay, the staff believes that stress/sensitivity testing would be used as a means for supporting or testing a given risk adjustment but not as a sole technique used to achieve the stated objective. That is, the staff does not believe that stress/sensitivity testing would meet the objective of the risk adjustment. However, those methods would not be precluded from enhancing or testing another method that does meet the objective.

Stochastic modelling

30. Stochastic modelling is a technique used to estimate probability distributions of potential outcomes by randomly varying one or more inputs over time. Generally historical information is used to derive the randomness of the outcomes and a large amount of simulations using the random variances is run.

31. The objective for a risk adjustment would allow for the use of stochastic modelling where that modelling is appropriate for determining pricing. For example, for contracts that involve complex guarantees and portfolios exposed to catastrophic risk, stochastic modelling techniques may be used in pricing these products in both the primary insurance and reinsurance markets. Accordingly, an insurer might use stochastic modelling to determine the amount it would rationally pay to be relieved of the risk for these hard-to-price contracts. However, the staff believes that in most instances, a stochastic modelling method would not be used because of the increase in complexity as more variables are included and the difficulty of controlling and auditing such a method.

Calibrate to the capital markets or insurance pricing

32. Calibrating to the capital markets or insurance (or reinsurance) pricing uses market information to derive a risk adjustment. In many instances, market participants are including in the pricing of risk the same uncertainty that a risk adjustment is attempting to include in the measurement of the insurance contract such as volatility of the cash flows and expectations of future cash flows. In the proposed insurance model, market inputs (such as interest rates and equity prices) are required to the extent that they exist for an insurance contract. However, in most instances an observable market does not exist for many of the

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inputs to an insurance contract. As discussed above, reinsurance pricing could be used as an input for meeting the objective of a risk adjustment, but it probably would be applied together with other evidence. A calibration method appears to be better suited to benchmarking or testing other methods for determining a risk adjustment.

Comparability through disclosures

33. One alternative for the boards' consideration is whether disclosures can be designed to provide comparability amongst insurers. Regardless of whether the boards agree with the staff analysis above about the objective for the risk adjustment limiting the risk methodologies, disclosures could be provided by each insurer that translates the risk methodology used into one common benchmark risk methodology. For example, insurers could be required to translate the risk methodology used into the confidence interval that corresponds with the risk adjustment that they have estimated. Another possibility would be to disclose the risk adjustment both as an absolute amount and a percentage of the expected present value of remaining cash flows. By providing this information to users, it would allow them to compare one management's view of uncertainty to other insurers.
34. This approach allows the boards to signal a preference in risk methodology without creating a rule. Some insurers may choose to simply use the risk methodology for disclosure as the risk methodology for measurement as a practical matter. Other insurers may choose to use a different methodology than the one required for disclosure. Further, this type of disclosure may help auditors in benchmarking alternative risk methodologies as well as assist in the audit. For example, an auditor would be most familiar with the required risk methodology for disclosure. Therefore, the auditor would need to reconcile the approach used for measurement to the approach required for disclosure. In this way, the auditor would be able to back into the risk methodology used for measurement (if that methodology is different from the methodology required for disclosure).
35. Some may argue that the translation from one risk methodology to another may be too costly. Further, if the boards require a risk methodology for disclosure, some may ask why not require that risk methodology for measurement? The staff acknowledges that these are valid concerns. However, disclosures may be a viable alternative to limiting the risk methodologies available.

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36. The staff believes that a risk methodology based on a quantile method (such as value at risk or CTE) would provide an appropriate benchmark for disclosure. A quantile risk methodology uses a confidence level (a percentage) to provide the likelihood that an estimate will be included within the confidence interval. This methodology also allows for the communication to users of where a particular risk adjustment falls within a loss distribution. The key unknown (and the part subject to manipulation) would be the estimated loss distribution. The estimated loss distribution could be manipulated in such a way that the risk adjustment may appear more robust than it is in reality. However, disclosure about the sensitivity of the risk adjustment to changes in the loss distribution may expose potential manipulation (that is, a reader of the financial statements would be able to see if there is a significant impact to the risk adjustment for a modest change in the confidence level). Further, the actuarial community could also assist in developing guidelines about and parameters around how the loss distribution is determined.

Residual margin

37. At inception the residual margin equals the difference between (a) the expected premiums [IASB: premiums less acquisition costs] and (b) the expected claims and expenses plus a risk adjustment.

Is the residual margin part of the insurance liability?

38. If the boards were to pursue an approach with a separate risk adjustment and a residual margin, the insurance measurement is a hybrid of:

- (a) A direct liability measurement, using current estimates of expected cash flows, time value of money, and a risk adjustment; and
- (b) an allocation element (the residual margin) that eliminates a day one gain and is subsequently released as income over the coverage period.

39. The residual margin does not follow from the notion of fulfilment value. So one has to decide whether a residual margin is either part of the total insurance liability or a separate liability outside the insurance liabilities.

40. Some might see the residual margin as an 'initial profit margin' or a day one profit that was not recognised at inception, akin to deferred income. They may therefore characterise the residual margin as not being part of the remaining liability from

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insurance contracts and therefore should be reported as a separate liability outside the insurance liability.

41. However, the staff developed the measurement approach on the rationale that the residual margin conceptually would be part of the overall insurance liability; in previous discussions the residual margin was referred to as the ‘fourth’ building block of the measurement of insurance contracts. The staff believes that the residual margin should be presented as part of the insurance liability for the following reasons:

- (a) The boards decided that the overall measurement of an insurance contract should at inception be calibrated to the premium (IASB: premium less incremental acquisition costs). In the staff’s view this simply means that the initial measurement of an insurance contract is at transaction price (IASB: transaction price less incremental acquisition costs). In other projects where the boards recently decided that the initial measurement is equal to the transaction price, all implicit or explicit components are reported as an integral part of the carrying amount of the instrument.
- (b) It may be difficult, if not impossible, to describe a residual item outside the insurance liability in such a way that it separately meets the definition of a liability.

42. The staff believes the amount of the (remaining) residual margin at inception and each subsequent reporting date provides useful information that may assist the users in understanding the amounts reported and assessing the future profitability of the insurance contracts. The staff therefore recommends that the insurer should disclose the amount of the residual margin.

Question for the boards

Do you agree that the residual margin is part of the insurance liability rather than a separate liability outside the insurance liabilities, and that the amount of the residual margin should be disclosed?

Should interest be accreted on the residual margin?

43. During the joint March Board meeting, the staff provided a set of examples in Agenda Paper 6G (FASB Memorandum No. 41G) illustrating how the residual margin would be released. In those examples, the total premium received is

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CU1,000 but that amount was adjusted for the time value of money. Consequently, the residual margin was adjusted for the time value of money. The boards discussed the accretion of the residual margin and requested that the staff bring this issue back.

44. One of the issues that was raised during that discussion was how accretion of interest compares to the approach taken in the revenue recognition project. In that project, the boards decided tentatively that an entity's net contract position should reflect the time value of money whenever that effect would be material (because payment from the customer is due either significantly before or significantly after the point at which goods or services are transferred to the customer). In that case, the transaction price comprises (a) the cash selling price of the goods or services and (b) a financing component, either interest from the customer or interest to the customer. In the case of a prepayment from the customer, often the case for insurance, the reported revenue number would be adjusted by accreting interest to the (pre)payment made by the customer, in order to reflect the amount the customer would have paid at the date the goods and services are transferred.
45. Proponents of accreting interest on the residual margin point out that it is consistent with the overall model for insurance contracts (that is, time value of money is integral to all parts of the model). These proponents refer to the discussion in the previous section and argue that the residual margin is part of the insurance liability. At inception, the calculation of the residual margin is the result of subtracting one discounted balance (the expected premiums) from another discounted balance (the expected claims and expenses plus a risk adjustment). Consequently the remaining balance (the residual margin) is a discounted balance at inception. Those who propose interest accretion on the residual margin believe that it would be inconsistent to adjust all other parts of the liability for time value of money but not the residual. They see interest accretion to the residual margin as a consistent application of the time value of money to the **entire** insurance liability and point out that, because a residual margin may be of significant size and/or may be released over many periods, accreting interest to that margin can have a material impact. Further, these proponents point out that the accretion of the residual margin is consistent with the decision reached in the Revenue Recognition project about showing interest in revenue. Under the expanded margin approach, accreting

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interest on the residual margin would keep revenue closer to the revenue number that would be reported under the revenue recognition proposals.

46. Opponents point out that the residual margin represents the difference between two balances and does not reflect any specific component of the contract but rather an amalgamation of components that are not separately identified (such as recovery of acquisition costs, arbitrage between the retail and wholesale markets, profit due to operating in a niche market, profit due to a 'hard' market, required profit for other services provided under the contract). The residual margin is simply the by-product of the decision not to recognize day one gains in profit or loss and in their view represents a deferred profit. These opponents point out that interest is generally accreted on cash flows but not on deferred profits (which is a noncash item).

Staff recommendation

47. Some staff members recommend that interest be accreted on the residual margin. These staff members believe that it is conceptually correct, particularly if the residual margin is regarded as a part of the insurance liability, and is consistent with the tentative decisions reached in the Revenue Recognition project. Other staff members recommend that interest not be accreted on the residual margin. These staff members believe that because the risk adjustment reflects the time value of money and is remeasured each period, accreting interest on the residual margin provides no additional benefit for the additional cost.

Question for the boards

Do the boards believe that interest should be accreted on the residual margin?

Purpose of this appendix

1. This appendix includes examples for two particular methods, a confidence interval method and a cost of capital method, to illustrate how the two margin approach (risk adjustment plus residual margin) work.
2. The examples are highly simplified examples designed to highlight the application of risk adjustments and residual margins. The first example is a confidence interval method with a one-year coverage period and a four-year claims settlement period after the coverage period ends. The second example shows a cost of capital method for the same contract.
3. The boards agreed during their February 18 meeting to further develop an expanded margin presentation. The examples use this presentation model.

Example 1

4. The fact pattern for this one-year non-life contract is as follows (numbers are in CU1,000):
 - (a) Five thousand contracts with a premium of CU1,000 paid 1 January and covering insured events between 1 January and 31 December of year 1.
 - (b) Expected claims (including claims handling costs) of CU4,000. Claims are incurred evenly over the coverage period (year 1). CU600 is paid at June 30 of year 1, CU1,000 is paid at 31 December of year 1, CU800 is paid at the end of year 2, CU600 is paid at the end of year 3, CU600 is paid at the end of year 4, and CU400 is paid at the end of year 5.
 - (c) No other expenses.
 - (d) We ignore time value of money, ie for the purpose of this example the investment return on assets and the discount rate for the insurance liability are set a 0%.
 - (e) The insurer determines a confidence level that is consistent with what it would rationally pay to be relieved of the risk. For this example, we assume that that is a confidence level of 75%. We also assume that this confidence level is applied throughout the life of the contract. We also assume that that confidence level results in the following risk

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adjustments: CU 300 at inception, CU218 at June 30 of year 1, CU128 at 31 December of year 1, CU60 at the end of year 2, CU45 at the end of year 3, CU24 at the end of year 4, and CU0 at the end of year 5.

- (f) The total premium, received at inception, is CU5,000. At inception, the insurer determines the expected (present) value of the cash outflows as CU4,000 and the risk adjustment as CU300. Therefore, the residual margin at inception is CU700.
 - (i) The amount of risk and the risk adjustment decline throughout the claims settlement period as the insurer is released from risk.
 - (ii) The residual margin is released over the coverage period as a pro rata allocation based on the incurred claims. Because all claims are incurred in year 1, the residual margin is fully released in that year.
- (g) No differences between actual outcomes and previous estimates.
- (h) No changes in circumstances.

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Confidence Interval

Income statement	<i>Inception</i>	<i>Year 1 1H</i>	<i>Year 1 2H</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Total</i>
Premium revenue		2.500	2.500	0	0	0	0	5.000
Policyholder claims		(2000)	(2000)	0	0	0	0	(4.000)
Increase/decrease from risk- claims liabilities		(68)	(60)	68	15	21	24	0
Insurance margin	0	433	440	68	15	21	24	955
Investment income		0	0	0	0	0	0	0
Interest on insurance liability		0	0	0	0	0	0	0
Net interest and investment	0	0	0	0	0	0	0	0
Profit	0	433	440	68	15	21	24	1.000

Balance sheet

	<i>Inception</i>	<i>Year 1- Q2</i>	<i>Year 1- Q4</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>
Cash	5.000	4.400	3.400	2.600	2.000	1.400	1.000
Insurance liabilities	(5.000)	(3.968)	(2.528)	(1.660)	(1.045)	(424)	0
Equity	0	433	873	940	955	976	1.000

Margin release

Risk adjustment	-	83	90	68	15	21	24	300
Residual margin	-	350	350	-	-	-	-	700
Total release of margin	-	433	440	68	15	21	24	1.000

5. This example shows that the insurer still recognises a margin in year 2 through 5 through the release of the risk adjustment associated with the outstanding claims liability for those years. At the end of year 1, the whole residual margin has been released.
6. The risk adjustment shows the biggest release in absolute amount during the coverage period because at the end of the coverage period the insurer should have received a lot of information about the actual number of claims (frequency) and also some information on severity of the claims. [For this example, we assumed that the insurer has all information about the actual number of claims at the end of coverage period. So at that point, the insurer is only exposed to uncertainty about the severity of the claims.] Furthermore, a significant amount

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of claims has already been paid during the coverage period. The release of the risk adjustment in year 5 is slightly higher than in year 4. This is because late-settled claims usually are more uncertain (ie have a wider and perhaps more skewed distribution).

7. The entire premium is recognised in year 1. That implies that any amount needed for the risk adjustment associated with the claims liabilities has to be accrued when claims are incurred during the coverage period. This accrual is included on the line 'increase/decrease from risk-claims liabilities'. Those accrued amounts are released during the claims settlement period.
8. An alternative presentation would have been to report as revenue in year 1 the premium less the part of the risk adjustment that is expected to be released in future periods; that part of the risk adjustment would be shown as revenue in years 2 through 5.

Example 2

9. The fact pattern is the same as in example 1, with the following changes.
 - (a) In this example, the insurer applies a cost of capital method to estimate the risk adjustment. The insurer determines the required **capital** at a 99.5% confidence interval (this means that the insurer aims at holding sufficient capital to have a 99.5% chance of surviving (extreme) adverse circumstances during the following year). We assume that results in the following capital levels that the insurer needs to hold at each reporting period: CU2,900 at inception, CU2,100 at June 30 of year 1, CU1,250 at 31 December of year 1, CU900 at the end of year 2, CU650 at the end of year 3, CU350 at the end of year 4, and CU0 at the end of year 5.
 - (b) The insurer estimates the cost of holding capital that is consistent with what it would rationally pay to be relieved of the risk; we assume in this example that capital rate is 10% throughout the life of the contract. The required capital at each reporting period multiplied by the cost of capital rate (10%) result in the following risk adjustments: CU 290 at inception, CU210 at June 30 of year 1, CU125 at 31 December of year

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1, CU90 at the end of year 2, CU65 at the end of year 3, CU35 at the end of year 4, and CU0 at the end of year 5.

- (c) The total premium, received at inception, is CU5,000. At inception, the insurer determines the expected (present) value of the cash outflows as CU4,000 and the risk adjustment as CU290. Therefore, the residual margin at inception is CU710.
- (i) The amount of risk and the risk adjustment decline throughout the coverage period as the insurer is released from risk.
 - (ii) The residual margin is released over the coverage period as a pro rata allocation based on the incurred claims.

Cost of capital

Income statement	<i>Inception</i>	<i>Year 1 1H</i>	<i>Year 1 2H</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Total</i>
Premium revenue		2.500	2.500	0	0	0	0	5.000
Policyholder claims		(2000)	(2000)	0	0	0	0	(4.000)
Increase/decrease from risk- claims liabilities		(65)	(60)	35	25	30	35	0
Insurance margin	0	435	440	35	25	30	35	935
Investment income		0	0	0	0	0	0	0
Interest on insurance liability		0	0	0	0	0	0	0
Net interest and investment	0	0	0	0	0	0	0	0
Profit	0	435	440	35	25	30	35	1.000

Balance sheet

	<i>Inception</i>	<i>Year 1 1H</i>	<i>Year 1 2H</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>
Cash	5,000	4,400	3,400	2,600	2,000	1,400	1,000
Insurance liabilities	(5,000)	(3,965)	(2,525)	(1,690)	(1,065)	(435)	0
Equity	0	435	875	910	935	965	1,000

Margin release

Risk adjustment	-	80	85	35	25	30	35	290
Residual margin	-	355	355	-	-	-	-	710
Total release of margin	-	435	440	35	25	30	35	1.000

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10. Like in the first example, the risk adjustment shows the biggest release in absolute amount during the coverage period because of the information the insurer received about frequency and severity of claims as well as the actual settlement of claims during the coverage period; capital and the corresponding risk adjustment are released accordingly during that period. The release of the risk adjustment in year 5 is also slightly higher than in year 4 to demonstrate that late-settled claims usually are more uncertain.

- B1. The following is an excerpt of the measurement section from the Exposure Draft on IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*:
- 36A An entity shall measure a liability at the amount that it would rationally pay at the end of the reporting period to be relieved of the present obligation.
- 36B The amount that an entity would rationally pay to be relieved of an obligation is the lowest of:
- (a) The present value of the resources required to fulfil the obligation, measured in accordance with Appendix B;
 - (b) The amount that the entity would have to pay to cancel the obligation; and
 - (c) The amount that the entity would have to pay to transfer the obligation to a third party.
- 36C An entity might be unable to cancel or transfer some obligations within the scope of this Standard. If there is no evidence that an entity could cancel or transfer an obligation for a lower amount, the entity measures the liability at the present value of the resources required to fulfil the obligation.
- 36D The amount that an entity would have to pay to cancel or transfer an obligation is the price that the counterparty or a third party would demand, plus any costs of cancellation or transfer.
- B2. Appendix B of the exposure draft on IAS 37 provides the following additional guidance related to the risk adjustment used in determining the present value of the resources required to fulfil the obligation (that is, the amount in 36B(a)):
- B15 An entity shall consider the risk that the actual outflows of resources might ultimately differ from those expected. A risk adjustment measures the amount, if any, that the entity would rationally pay in excess of the expected present value of the outflows to be relieved of this risk.
- B16 A risk adjustment can be included by:
- (d) Adjusting estimates of the future outflows,
 - (e) Adjusting the rate used to discount the future outflows to their present values, or
 - (f) Calculating the expected present value of the future outflows and adding a risk adjustment to the amount so calculated.
- The most appropriate method of including a risk adjustment depends on the nature of the risk and the pattern of the estimated future outflows. If the risk adjustment for a liability is included by adjusting the discount rate, the adjusted discount rate is typically lower than a risk-free rate.
- B17 Caution is needed in making judgements under conditions of uncertainty, so that liabilities are not understated. However, uncertainty

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does not justify deliberate overstatement of liabilities. Care is needed to avoid duplicating adjustments for risk with consequent overstatement of the liability. For example, if the estimated outflows for a particularly adverse outcome are increased to take account of risk, that outcome is not then also treated as more probable than is realistically the case.