Project **Fair Value Measurement**

Topic **Measuring the fair value of financial instruments within a portfolio**

Purpose

1. At their February 2010 joint meeting, the boards discussed measuring the fair value of financial instruments. At that meeting, the boards:

   (a) tentatively decided that the concepts of highest and best use and of valuation premise are relevant only for non-financial assets and *are not relevant for financial assets or financial liabilities*.[1]

   (b) discussed whether the fair value of a financial instrument within a portfolio should consider offsetting risk positions (see Agenda Paper 2D (IASB)/3D (FASB), including the supplement, from that meeting). Before finalising a decision on that issue, the boards asked the staff to clarify the approach to measuring the fair value of financial instruments in practice. This paper is the follow-up to that meeting.

2. **This is one of the most controversial issues in the fair value measurement project.** It is the main issue that financial institutions wanted to discuss with the IASB after the publication of the exposure draft *Fair Value Measurement* in May 2009 because of concerns that the proposals in the exposure draft:

[1] Both the IASB's exposure draft and Topic 820 describe the valuation premise of an asset to be:
(a) 'in-use' if the asset would provide maximum value to market participants principally through its use in combination with other assets and liabilities as a group (as installed or otherwise configured for use)
(b) 'in-exchange' if the asset would provide maximum value to market participants principally on a stand-alone basis.

(a) will significantly change practice with respect to how entities measure the fair value of financial instruments managed within a portfolio

(b) the systems changes necessary to effect a change in practice would result in significant operational challenges and costs

(c) would result in financial reporting being divorced from risk management systems, with the associated implications.

3. This paper describes two possible approaches for measuring the fair value of a financial instrument[2] within a portfolio:

(a) **Approach 1**: an instrument by instrument approach. In this approach, unless otherwise specified in the relevant financial instrument standards, the unit of account and the unit of valuation are the individual instrument. This is **not** the approach currently used in practice for measuring the fair value of financial instruments that are managed within a portfolio.

(b) **Approach 2**: a portfolio approach. In this approach, the unit of account and the unit of valuation might differ.[3] This is the approach currently used in practice for measuring the fair value of financial instruments that are managed within a portfolio.

4. This paper is organised as follows:

Part 1: A description of the issue being raised by entities applying US GAAP and IFRS financial instruments standards

Part 2: The valuation process in practice

Part 3: The staff's analysis of the issue

Part 4: The staff's recommendations to the boards

5. This paper contains the following appendices:

[2] In this paper, references to 'financial instruments' include derivatives.
[3] In this paper, unit of valuation means that an asset or liability can be aggregated (ie grouped with other assets and/or liabilities) or disaggregated for measurement purposes, even though it might be aggregated or disaggregated at a different level for recognition purposes.

Appendix 1: Summary of current practice in US GAAP and IFRSs

Appendix 2: Summary of the proposals in IASB's exposure draft

Appendix 3: What is a portfolio?

Appendix 4: An example illustrating the application of Approach 1 and Approach 2

Part 1: Description of the issue

6. Based on current practice as described in Appendix 1, many entities applying US GAAP and IFRSs use a portfolio approach to measure the fair value of a financial instrument, although they do so in different ways. It is important that US GAAP and IFRS be converged on this issue, although this paper does not ask the boards to consider whether convergence should be accomplished in a fair value measurement standard or in a financial instruments standard.

7. Given the boards' decision in February, the requirements in FASB Accounting Standards Codification Topic 820 (Fair Value Measurements and Disclosures)[4] and the proposals in the IASB's exposure draft (as summarised in Appendix 2), **the fair value of a financial instrument is a market-based exit price for the individual instrument without regard to the fact that the instrument might be held within a portfolio**.

8. The issue is that most entities do not manage financial instruments on the basis of each individual contract (which is the unit of account). Previously, the in-use valuation premise in Topic 820 and paragraph AG72 of IAS 39 *Financial Instruments: Recognition and Measurement* allowed entities to measure the fair value of an individual financial instrument in the context of a portfolio of instruments within which some or all of the risks inherent within the contract are managed. Based on the boards' decision in February, this practice would not be permitted to continue.

9. Furthermore, entities generally do not usually **sell** financial assets or **transfer** financial liabilities when they 'exit' a position. Rather, they buy one or more instruments that offset the risk exposure created by the instrument(s) they hold. This is especially true of derivatives.

10. Some have suggested that even without explicitly permitting Approach 2, an entity might be able to use the bid-ask spread guidance (ie select the price within

[4] Topic 820 codified FASB Statement of Financial Accounting Standards No. 157 *Fair Value Measurements* (SFAS 157).

the bid-ask spread that is most representative of fair value in the circumstances) to achieve the same result. However, when the unit of account is the individual instrument, it would be hard for an entity to justify selecting any particular place within the bid-ask spread on the basis of the other instruments the entity holds. Furthermore, credit risk is not a component of the bid-ask spread and therefore counterparty credit valuation adjustments (CVA) could not be applied (CVA is described in Part 2).

11. **It should be noted that the IASB's conclusion when developing its exposure draft that there is no market value for the benefits of diversification is not being disputed.** The issue is that the IASB seems to have used the term 'diversification' synonymously with 'offsetting'. Offsetting is not the same as diversification. Diversification minimises the variability in returns by investing in instruments that would perform differently to the same market event. Diversification does not eliminate an entity's exposure to a particular risk. On the other hand, offsetting eliminates an entity's exposure to a particular risk because offsetting only takes place when an entity invests in instruments that are exposed to substantially the same risks and those risks perform in nearly opposite ways to a market event.

Part 2: The valuation process

12. This section describes the application of two types of 'portfolio level adjustments' used in practice. Portfolio level adjustments result in a difference between the fair value of a portfolio and the sum of the fair values of the individual instruments held by the entity:[5]

    (a) bid-ask adjustment: takes into account the relevant bid-ask spread on the net open risk position. The bid-ask adjustment represents the price to the entity to lay off the net risks embedded in the portfolio. That is, it represents the exit price of the net open risk position within the portfolio. The bid-ask adjustment is applied to instruments with offsetting market risks.

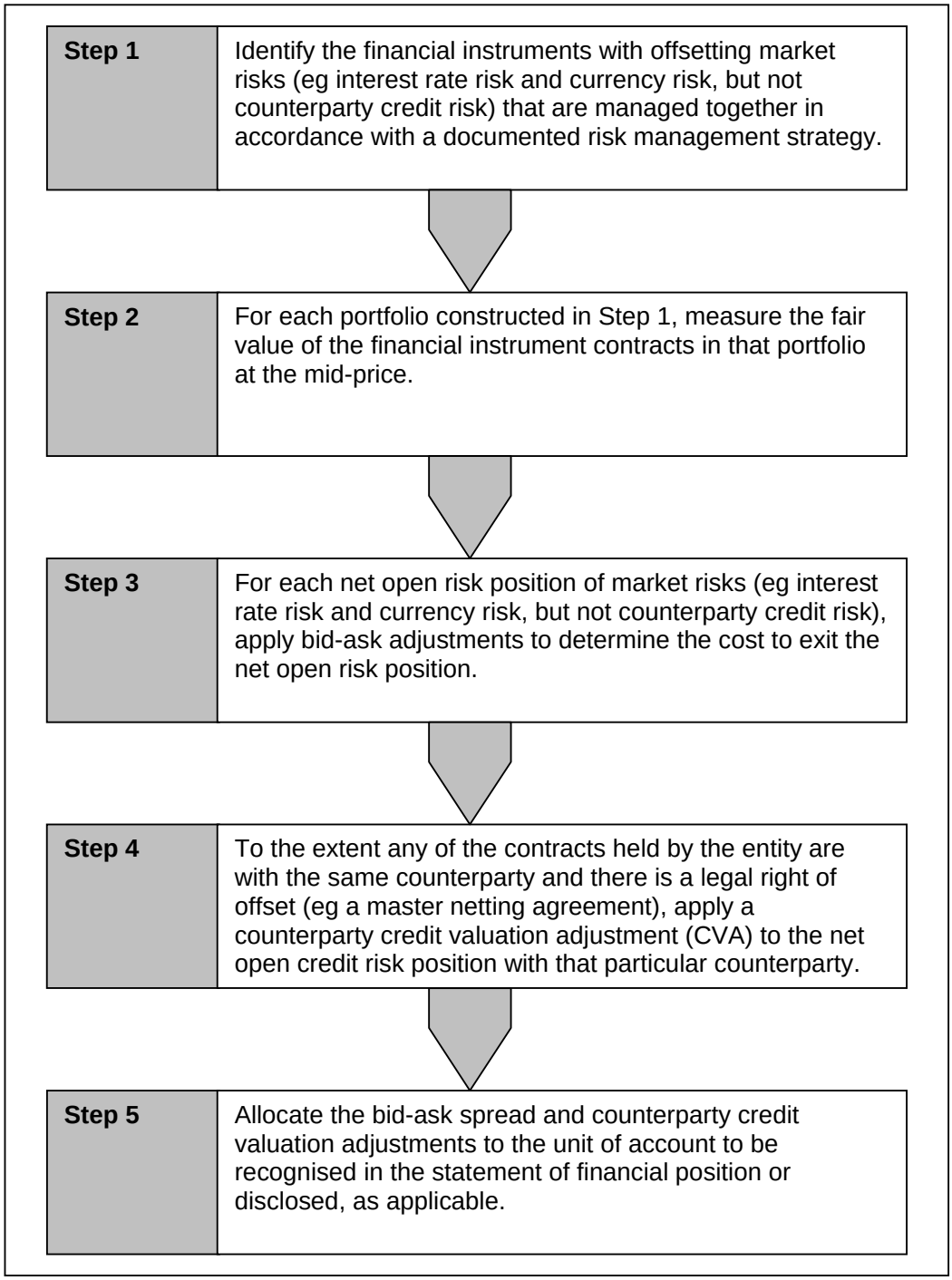
    (b) counterparty credit valuation adjustment (CVA): takes into account the exposure to the credit risk of a particular counterparty, given the legal right of offset in the event of bankruptcy (eg a master netting agreement).

13. The application of these adjustments is standard practice when measuring the fair value of financial instruments within a portfolio when an entity manages its portfolios according to the net risk exposure faced by the entity.[6] This practice did not change as a result of the publication of FASB Statement of Financial Accounting Standards No. 157 *Fair Value Measurements* (SFAS 157) and IAS 39.

14. The diagram below describes how financial instruments held within portfolios are measured in practice based on the staff's understanding after meeting with some financial institutions applying IFRSs and US GAAP. Although there are

[5] Both of these adjustments can be made at the individual instrument level, but because they also capture the effect of offsetting risk positions the amount of the adjustment at the individual instrument level could be different from the amount of the adjustment at the portfolio level.
[6] This practice is summarised in the Group of Thirty report, *Derivatives: Practice and Principles*, published July 1993.

variations in how this is done in practice, this section describes the general approach.



Step 1: Group by risks inherent in the instrument

15. The first step is to identify the instruments within each portfolio that expose the entity to substantially the same market risks (eg interest rate risk, currency risk and other price risk, as defined in IFRS 7 *Financial Instruments: Disclosures* for IFRS preparers) and are managed and their performance evaluated together (ie the level at which the decision to offset or not to offset is made). A portfolio may include financial instruments that share one or more market risks. Counterparty credit risk is not factored into the grouping into portfolios because this is performed at a higher level (eg the legal entity level), as described in Step 4 below.

16. For risks to be offset the instruments must have common characteristics. For example, they must have substantially the same maturity.

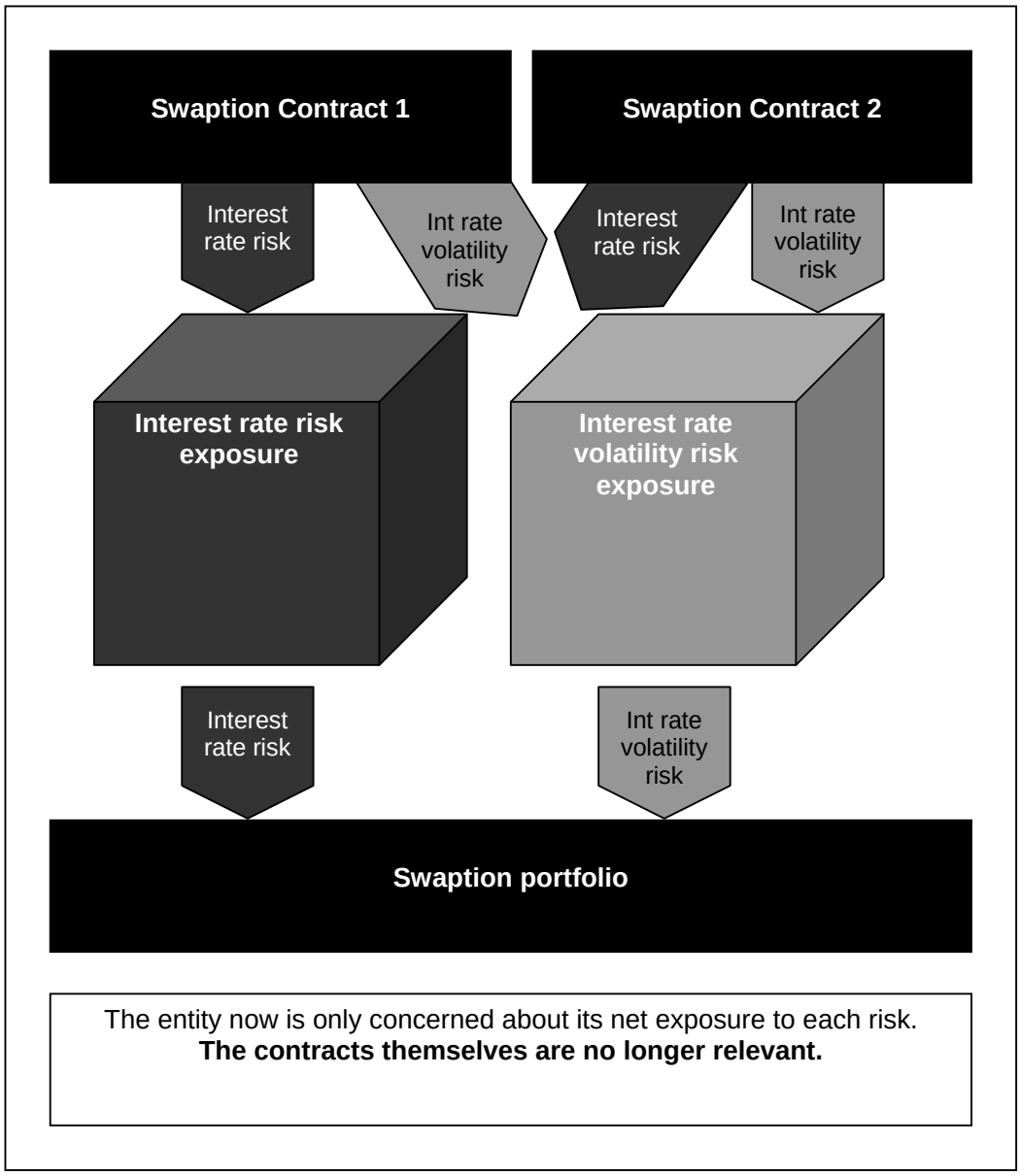
17. The example in Appendix 4 to this paper illustrates the measurement of two financial instruments (swaptions[7]) in two scenarios:

    (a) **Approach 1**: an instrument-by-instrument approach. The fair value of each swaption contract is measured individually.

    (b) **Approach 2**: a portfolio approach. The fair value of each swaption contract is measured individually in the context of the portfolio in which the contract is managed.

18. The following diagram shows the risks inherent in the swaption contracts when applying Approach 2. The swaption contracts and the risks inherent in those contracts are described further in Appendix 4.

[7] A swaption is an option to enter into an interest rate swap. A payer swaption gives its purchaser the right to enter into an interest rate swap at a preset rate within a specified period of time. A receiver swaption gives the purchaser the right to receive fixed payments. The seller agrees to provide the specified swap if called upon, though it is possible for the seller to offset that risk with other transactions.



19. The financial instrument contract is not relevant to the entity holding the contract once the entity has determined the net open risk exposures that arise from this and other contracts within the portfolio.

Step 2: Measure fair value of the financial instrument contract at the mid price

20. Once the instruments are aggregated into a portfolio, the fair value of each financial instrument within the portfolio is measured individually using inputs based on mid prices and following the principles in Topic 820/IAS 39 (eg using discounted cash flows or other valuation methodologies, maximising the use of

observable inputs and minimising the use of unobservable inputs).[8] The model is then calibrated to observable market data. In the calibration process, the entity applies model valuation adjustments, considering whether any adjustments to the model valuation are necessary (eg there might be a feature of the instrument that is not captured by the model).[9]

21. In Step 2 (measuring fair value using mid prices), the sum of the fair values of the individual instruments equals the fair value of the portfolio. However, this relationship does not hold when there are offsetting market risks and counterparty credit risks within the portfolio. The adjustments for these risks are described in Steps 3 and 4.

22. In practice, entities measure fair value using mid prices as a starting point for the following reasons:

    (a) It is a practical approach. Modelling the long positions to bid prices and short positions to ask prices requires the use of two interest rate curves, exchange rate curves, etc. Using mid prices allows the entity to use the same inputs regardless of the direction of the position. This is important when an entity has thousands of instruments to measure.

    (b) It allows the entity to monitor risk. Having a consistent valuation basis for all instruments and positions means that entities can identify the natural offsets and manage their risk accordingly.

    (c) It promotes model integrity. Interest rate simulations and other processes need to be done using mid prices. The outcome is more reliable if the valuation is performed consistently.

23. In addition, this is the approach used in practice under IFRSs and US GAAP.

24. Requiring entities to mark each long position to the bid price and each short position to the ask price would require significant systems modifications at significant cost.

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[8] If there is a quoted price for a financial instrument (ie a Level 1 or 2 quoted price), the entity uses the quoted mid price, subject to the bid-ask adjustments in Step 3.

[9] Agenda Paper 2D (IASB)/3D (FASB) for the February 2010 joint meeting described model adjustments, liquidity (bid-ask) adjustments and credit adjustments.

Step 3: Apply bid-ask adjustments to the net open position when there are offsetting market risks

25. Once an entity has determined the fair value of each financial instrument contract using mid prices, it calculates the price to lay off (exit) each risk (or the price to enter into an offsetting position) and nets that from the mid price *on a net basis* (ie the sum of the long and short positions in the portfolio). This is referred to as a bid-ask adjustment and it is done to take into account the relevant bid-ask spread on each net open risk position.[10] When the risks in a portfolio do not offset, the bid-ask adjustment is applied to the cumulative open risk position (this would be consistent with Approach 1).

26. The bid-ask adjustment takes into account the price to lay off each risk and is the difference between the bid or ask price and the mid price for each risk exposure. The price depends on the level of liquidity in the market for that particular risk exposure. In highly liquid markets, an entity can lay off its risk exposure at minimal cost, which is evidenced by a small bid-ask spread. In less liquid markets, the bid-ask spread is wider. As markets became less liquid during the financial crisis, bid-ask spreads widened significantly relative to their historical ranges.

27. Why are adjustments applied to the net open risk position? In practice, entities typically consider the fair value of their net open risk position because they manage risk within a portfolio. They do not consider the fair value of an individual instrument because they would not sell the individual instrument (ie they would not unwind the position to get out of it). Rather, they tend to exit the risk exposure by entering into an offsetting position in the same risk. In practice, there is a continuous monitoring and rebalancing process.

28. **The resulting fair value must be within the bid-ask spread.**

[10] Some refer to this as a 'liquidity adjustment', which is the term used in the Expert Advisory Panel report *Measuring and disclosing the fair value of financial instruments inn markets that are no longer active*, published in October 2008.

Step 4: Apply a counterparty credit valuation adjustment (if applicable)

29. The final step in the valuation process is to determine the net open risk exposure to particular counterparties. The net open risk position represents the entity's exposure to counterparty credit risk when there is a legal right of offset in the event of bankruptcy.[11] The net exposure is quantified by taking into account a counterparty credit valuation adjustment.

30. When exiting a position (entering into an offsetting position), an entity will consider the net open credit risk exposure to each counterparty, not the gross exposures, when there is a legally enforceable right of offset in the event of bankruptcy (eg a master netting agreement). When the entity is in the receive position (long position), it applies the counterparty's credit risk. When the entity is in the pay position (short position), it applies its own credit risk. To the extent the credit risk of the entity is different from that of the counterparty, there will be a difference in the fair values under the instrument-by-instrument approach (Approach 1) and the portfolio approach (Approach 2). The net exposure to a particular counterparty is usually managed at a level higher than the individual portfolio level, eg at the legal entity level.

31. The timing of the payments and the maturity do not need to be the same to consider the net open risk exposure to a particular counterparty when determining a counterparty credit risk adjustment. Some entities use simulation (eg Monte Carlo simulation) to forecast the expected exposure throughout the life of the instrument to determine the CVA. Factors taken into consideration

[11] A legal right of offset is most often achieved through a contractual master netting agreement. The staff understands, based on the presentation to the boards by ISDA in February 2010, that a legal right of offset exists in master netting agreements only in the event of bankruptcy or liquidation. However, there might be jurisdictions that permit or require offsetting under such agreements in the event of a default that does not lead to bankruptcy or liquidation. The staff has not performed an analysis of jurisdictions that permit offsetting other than in the event of bankruptcy or liquidation. Although a master netting agreement only addresses the netting procedure in the event of bankruptcy or liquidation, an entity's exposure to risk also matters in the event of default. In IFRSs, offsetting generally is only permitted when at the reporting date the entity has a legal right of offset and has the intent to do so. The analysis of how a legal right of offset factors into a fair value measurement might differ from the analysis of whether an asset or liability qualifies for derecognition or net presentation. In a fair value measurement, the entity is exposed to the risk of default by the counterparty. In the event of default (when there is not necessarily a legal right of offset), the entity will only be concerned with the net risk exposure (ie the net amount the entity would receive or pay). This is the same concern the entity would have in bankruptcy.

include, for example, forward interest rates, the probability of bankruptcy of either party and the effect of collateral.

32. Some believe that the application of the CVA is consistent with the guidance for measuring the fair value of liabilities. Topic 820 and the IASB's exposure draft state that the effect of an entity's credit risk might differ depending on the liability and the terms of any credit enhancements related to the liability. When there is a legally enforceable right of offset, the offsetting position is akin to collateral against a loan from the perspective of the holder. That is, it is a credit enhancement.

33. In practice, when an entity holds collateral against a loan (collateral is typically cash or marketable securities), the value of the collateral is taken into account before applying the CVA (ie the CVA is applied to the net open position after subtracting the value of the collateral held against the instrument).

Step 5: Allocate adjustments to individual instruments for presentation and disclosure

34. Practice varies with regard to the method for allocating the bid-ask adjustments and CVA to individual units of account. The bid-ask adjustment results in a fair value that is within the bid-ask spread for the asset or liability. The allocation of these adjustments is not the subject of this paper.

Part 3: Staff analysis

Conceptual merits – how does it fit with the [proposed] definition of fair value?

35. Strictly speaking, the approach used in practice does not comply with the definition of fair value because it does not attempt to estimate the *sale* of an *individual* financial asset or the *transfer* of an *individual* financial liability; rather, it attempts to estimate the price paid to economically eliminate the exposure to a particular risk (market or credit) and the subject of the measurement is not an individual contract.

36. In addition, the measurement represents a 'market-based exit price to the entity'. The value of the portfolio depends on the other instruments held by the entity and the entity's risk preferences. Market participants might have different expectations or risk preferences. However, the measurement does take into account market information.

Practical issues

37. From a practical perspective, the staff thinks the approach is reasonable because it takes into account the entity's economic exposure to risk. Financial institutions transact on the basis of their net exposure, not by unwinding positions and selling individual instruments. This practice is well-established and is consistent across market participants.

38. Requiring financial institutions to use an instrument-by-instrument approach (Approach 1 in this paper) would result in a significant change in practice that, in the staff's view, would not improve financial reporting because it would not represent how entities transact. Furthermore, requiring entities to run two systems so that they can both manage risk and prepare financial reports (and reconcile between the two) would be burdensome.

Possible ways forward

39. There are two possible approaches for addressing this issue in a converged fair value measurement standard:

    (a) **Approach 1**: an instrument by instrument approach. In this approach, unless otherwise specified in the relevant financial instrument standards, the unit of account and the unit of valuation are the individual instrument. This approach is consistent with fair value measurement principles because it represents the sale or transfer of an individual instrument without regard to other instruments held by the entity. However, it is not the way entities are measuring the fair value of financial instruments today when those instruments are held within a portfolio.

    (b) **Approach 2**: a portfolio approach. In this approach, the unit of account and the unit of valuation might differ. This approach would be an exception to fair value measurement principles, but it represents how financial instruments are traded in practice and how they are measured at fair value today when they are held within a portfolio.

40. In Approach 2, the unit of valuation would need to be specified to avoid entities aggregating or disaggregating financial instruments solely for the purpose of increasing or decreasing the value of the portfolio depending on the circumstances. Specifying the unit of valuation would also improve consistency in application relative to current practice.

Part 4: Staff recommendations

Bid-ask

41. The staff recommends that the boards permit entities:

    (a) to use mid prices as a basis for establishing fair values for offsetting (ie long and short) market risk positions (as market risk is defined in IFRS 7), and

    (b) to apply the price within the bid-ask spread that is most representative of fair value to the net open risk position.

    This would be consistent with the guidance in paragraph AG72 of IAS 39, updated to reflect the guidance in Topic 820 and the IASB's proposal in the exposure draft, which requires entities to select the price within the bid-ask spread that is most representative of fair value in the circumstances. The decisions made at this meeting will not affect the use of mid prices as a practical expedient, as allowed in Topic 820 and as proposed in the IASB's exposure draft.

42. The staff believes the approach in paragraph 41 should be limited to circumstances when:

    (a) the entity manages its financial instruments on the basis of the net open risk positions in accordance with the entity's documented risk management strategy (that is, it would not apply to entities that 'exit' a financial instrument by selling or transferring an individual financial instrument, but it would apply to entities that 'exit' a financial instrument by entering into an offsetting risk position).

    (b) the market risks (eg interest rate risk, currency risk or other price risk) that are being offset are substantially the same.

    (c) the financial instruments share common characteristics (eg maturities).

    (d) the financial instruments are measured at fair value on a recurring basis.

43. If an entity applies the approach in paragraph 41, it must do so on a consistent basis.

Counterparty credit

44. The staff recommends that the boards permit entities to consider offsetting counterparty credit risk positions when measuring the fair value of financial instruments when there is a legally enforceable right of offset (eg a master netting agreement) with the counterparty in the event of bankruptcy.

45. The staff is **not** currently asking the boards where within US GAAP or IFRSs this guidance would be located, eg in a converged fair value measurement standard or in the respective financial instruments standard.

Question 1 – Bid-ask
Do the boards agree with the staff recommendation in paragraph 41, subject to the criteria in paragraphs 42 and 43? If not, what do you propose and why?

Question 2 – Counterparty credit
Do the boards agree with the staff recommendation in paragraph 44? If not, what do you propose and why?

Appendix 1 – Current practice in US GAAP and IFRSs

1. The IASB's exposure draft and Topic 820 do not specify the unit of account for an asset or a liability (Topic 820 only specifies the unit of account in Level 1 of the fair value hierarchy). The unit of account is sometimes specified in other standards, although some standards do not specify the unit of account. The unit of account is not the subject of this paper. For financial instruments, the unit of account is generally the individual instrument.

2. Both the IASB's exposure draft and Topic 820 state that in a market in which bid and ask prices are quoted, the price within the bid-ask spread that is most representative of fair value is to be used. They also allow the use of mid-market pricing or similar pricing conventions as a practical expedient.

Current practice in US GAAP

3. Topic 820 does not specify the valuation premise for financial assets. Rather, the description of the 'in-exchange valuation premise' states that 'the highest and best use of the asset is in-exchange if the asset would provide maximum value to market participants principally on a standalone basis. For example, this **might** be the case for a financial asset' (emphasis added).

4. The use of the word 'might' in Topic 820 has been interpreted in practice by some to permit an in-use valuation premise for financial assets. People also have analogised the in-use valuation premise, which is written to apply to assets, to permit its application to groups of financial assets *and financial liabilities*. By doing this, the fair value of an individual financial instrument considers portfolio effects.

5. Others use the in-exchange valuation premise in combination with paragraph A18 of the basis for conclusions to FASB Statement of Financial Accounting Standards No. 159 *The Fair Value Option for Financial Assets and Financial*

Liabilities (SFAS 159),[12] which states that when measuring fair value under Topic 820, the unit of valuation might differ from the unit of account. Paragraph A18 is not in the codification, and therefore is not part of authoritative US GAAP.

6. The publication of SFAS 157/Topic 820 did not change practice in this area because it was silent about the unit of account (outside Level 1) and permitted the use of the in-use valuation premise to measure the fair value of financial assets.

Current practice in IFRSs

7. In IFRSs, entities apply paragraph AG72 of IAS 39, which states:

> … When an entity has assets and liabilities with offsetting market risks, it may use mid-market prices as a basis for establishing fair values for the offsetting risk positions and apply the bid or asking price to the net open position as appropriate…

8. In other words, entities apply a portfolio approach when measuring the fair value of a financial instrument when the risk inherent in that financial instrument is offset by a risk inherent in another instrument the entity has.

9. The IASB's rationale for including paragraph AG72 in IAS 39 was that the entity has 'locked in' the cash flows from the asset and the liability and could sell the matched position without incurring the bid-ask spread. It is important to recall that in IAS 39 the bid-ask spread only consists of transaction costs.[13]

10. Paragraph AG72 of IAS 39 refers to 'offsetting market risks'. In practice, 'market risk' has been interpreted to include credit risk in IAS 39. However, both market risk and credit risk are defined in IFRS 7 *Financial Instruments: Disclosures*, implying that they are two separate types of risk.

11. Market risk and credit risk are defined in IFRSs as follows:

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[12] FASB Accounting Codification Topic 825 (Financial Instruments) codified SFAS 159.
[13] Paragraph AG72 of IAS 39 was not carried forward to the IASB's exposure draft. See paragraph 2 in Appendix 2 for the IASB's rationale for this.

market risk	The risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: currency risk, interest rate risk and other price risk.
currency risk	The risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.
interest rate risk	The risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates.
other price risk	The risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices (other than those arising from interest rate risk or currency risk), whether those changes are caused by factors specific to the individual financial instrument or its issuer, or factors affecting all similar financial instruments traded in the market.
credit risk	The risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation.

Appendix 2 –Proposals in the IASB's exposure draft

Proposals in the IASB's exposure draft

1. When developing its exposure draft, the IASB concluded that the in-exchange valuation premise must be used when measuring the fair value of a financial asset because market participants would only pay for the benefits they could derive from holding the financial asset within a diversified portfolio. The basis for conclusions states that a financial asset does not derive any incremental value from being held within a portfolio. In other words, there is no market value for the benefits of diversification.

2. This conclusion in and of itself would not change practice. However, in the exposure draft the IASB proposed removing paragraph AG72 from IAS 39 because it contains guidance about applying the bid-ask spread. It seemed paragraph AG72 would be redundant once the IFRS on fair value measurement is published given that the IFRS on fair value measurement would allow an entity to use the point within the bid-ask spread that is most representative of fair value in the circumstances (and entities could use the mid-price as a practical expedient). However, that does not appear to be the case, as explained in this paper.

3. In addition, the IASB proposed amending IAS 39 to state that an entity shall not adjust the price per unit for the number of units held when applying the fair value measurement guidance to a holding of financial instruments. In other words, the exposure draft clarifies that the unit of account is the individual instrument in all levels of the fair value hierarchy.

Appendix 3 – What is a portfolio?

1. A **portfolio** is not a defined term in IFRSs or US GAAP. It is commonly understood to mean a combined holding of more than one share, bond, marketable security, commodity, property or other asset held by an investor. This meaning is broader than what is intended in the situation described in this paper.

2. A portfolio can have **long** and **short** positions. When an entity has a **long** position in an asset, the entity holds the asset. When an entity has a **short** position, the entity does not hold the asset, yet it has sold the asset. Entities generally 'short' for two reasons:

   (a) to take advantage of an anticipated decline in the price of the asset

   (b) to protect the cash flows or profit of a long position.

3. For example, when an entity has a long position in an asset and that asset exposes the entity to a risk (eg interest rate risk) that the entity does not wish to be exposed to, the entity might enter into a short position to cover that risk.

4. This paper is about a subset of the portfolios described in paragraph 1 of this appendix. This subset is the level at which the risks inherent in the financial assets or financial liabilities are managed by the entity. An entity that manages its exposure to a particular risk by offsetting that risk does so by entering into positions in one or more financial instruments that have the substantially the same risk. The risks (eg interest rate risk, counterparty credit risk, currency risk) inherent in the instrument must be substantially the same to be offset. In this subset, the individual financial instrument is not relevant to the entity holding the instrument. Said differently, an entity manages a portfolio of financial instruments based on the net risk that the entity is exposed to. For example, this is the way portfolios of derivative instruments are commonly constructed and managed in practice.

Why do entities use portfolios?

5. The purpose of a portfolio is to reduce risk by **diversification**. Some risk is idiosyncratic and is specific to the instrument; other risk is market-based and is common to all instruments (ie systematic risk). Idiosyncratic risk is entity-specific and can be eliminated by diversification. Systematic risk cannot be eliminated by diversification.

6. A market participant buyer will not be compensated for the risk associated with its particular holding of instruments to the extent that the risk is not common to all market participants (ie it will not be compensated for idiosyncratic risk). However, a market participant buyer will expect to be compensated for systematic risk, which is 'priced into' the value of each individual instrument within the portfolio.

7. Because the values of the individual instruments within a portfolio include compensation for systematic risk and not idiosyncratic risk, diversification (the combining of instruments to minimise idiosyncratic risk) does not affect the value of the individual instruments within a portfolio. Diversification also does not affect the value of the portfolio.

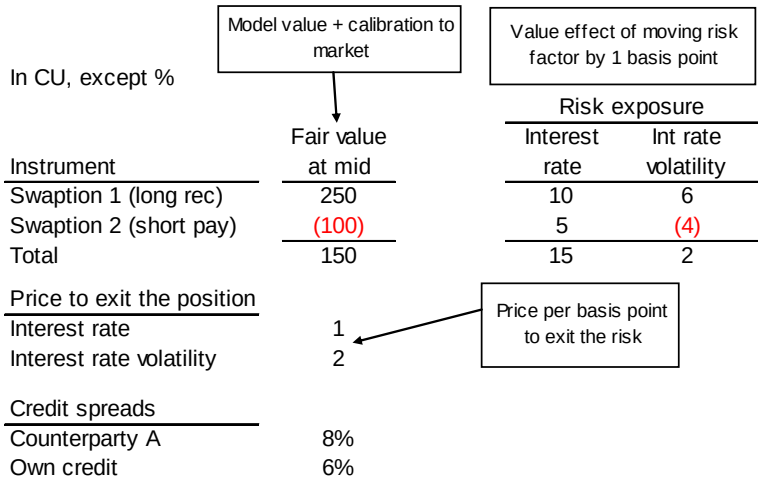
Appendix 4 – Example

1. Entity X has entered into two swaption contracts with Counterparty A.

2. Both contracts expose Entity X to interest rate risk and interest rate volatility risk. Interest rate risk exposes Entity X to an adverse change in the value of the swaption due to changes in interest rates (referred to in practice as ‘delta risk’). Interest rate volatility risk exposes Entity X to an adverse change in the value of the swaption due to changes in the volatility of the underlying swap interest rates (referred to in practice as ‘vega risk’).

3. Both swaptions expose the entity to substantially the same risks and have similar characteristics.

4. Because both swaptions are with Counterparty A and a master netting agreement is in place, the CVA is calculated net. Entity X does not have any other contracts with Counterparty A.



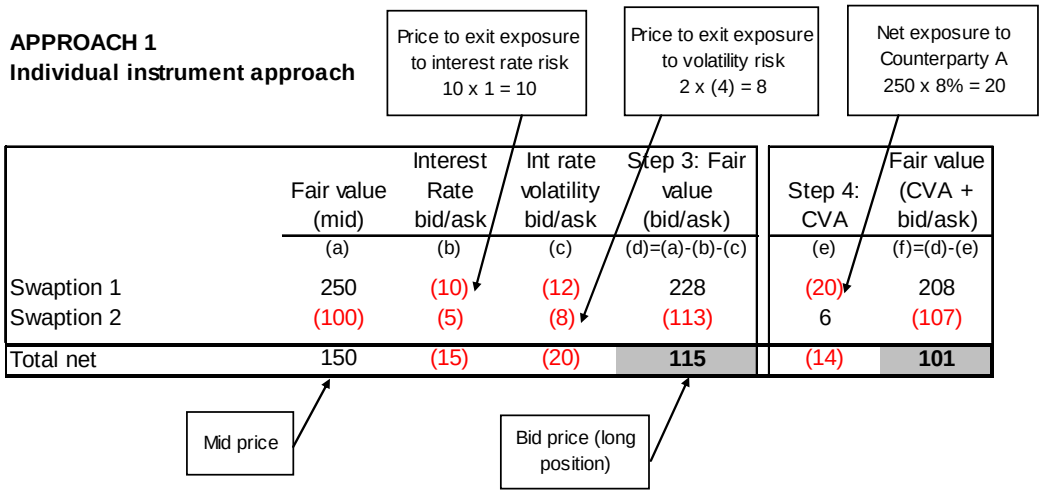
In CU, except %

Instrument	Fair value at mid	Risk exposure: Interest rate	Risk exposure: Int rate volatility
Swaption 1 (long rec)	250	10	6
Swaption 2 (short pay)	(100)	5	(4)
Total	150	15	2

Price to exit the position	
Interest rate	1
Interest rate volatility	2

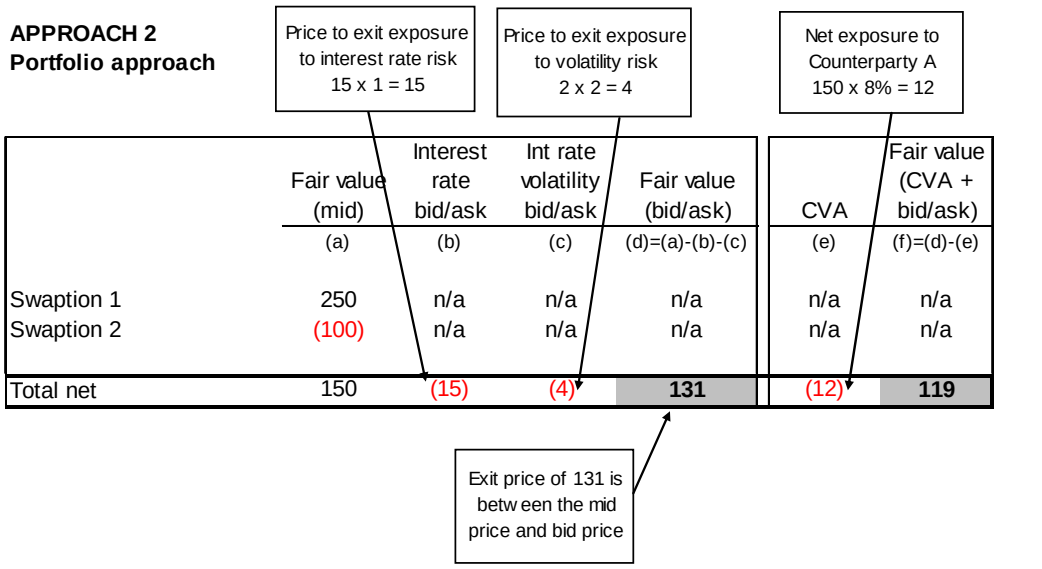
Credit spreads	
Counterparty A	8%
Own credit	6%

APPROACH 1
Individual instrument approach



	Fair value (mid)	Interest Rate bid/ask	Int rate volatility bid/ask	Step 3: Fair value (bid/ask)	Step 4: CVA	Fair value (CVA + bid/ask)
	(a)	(b)	(c)	(d)=(a)-(b)-(c)	(e)	(f)=(d)-(e)
Swaption 1	250	(10)	(12)	228	(20)	208
Swaption 2	(100)	(5)	(8)	(113)	6	(107)
Total net	150	(15)	(20)	**115**	(14)	**101**

APPROACH 2
Portfolio approach



	Fair value (mid)	Interest rate bid/ask	Int rate volatility bid/ask	Fair value (bid/ask)	CVA	Fair value (CVA + bid/ask)
	(a)	(b)	(c)	(d)=(a)-(b)-(c)	(e)	(f)=(d)-(e)
Swaption 1	250	n/a	n/a	n/a	n/a	n/a
Swaption 2	(100)	n/a	n/a	n/a	n/a	n/a
Total net	150	(15)	(4)	**131**	(12)	**119**

Offsetting market risk

5. In our discussions with the financial institutions, they asserted that the fair value of the portfolios based on the net risk exposure (131) is more relevant than the fair value of the sum of the individual instruments (115) because these entities do not unwind their positions by selling individual contracts. As a result, the 115 overstates the price to exit their exposure (the total price in Approach 1 is 35).

6. Instead, these entities would exit a risk exposure on a net basis by entering into an offsetting position (or positions). By entering into an offsetting position, the entity will only need to incur the price to exit the net open risk exposure (the total price in Approach 2 is 19).

7. The financial institutions also asserted that the 131 considers what a market participant would consider when determining the price it is willing to pay for the same net risk exposure.

8. Furthermore, marking to the mid-price (150) understates the fair value of the net open risk exposure because it does not take into account the price to exit the position. Marking to bid or ask would be conservative because it assumes that the entity will incur the entire bid-ask spread, when in reality most entities do not. Without taking into account other positions held by the entity, the entity would be required to mark at bid, ask or mid according to the fair value measurement guidance.

9. Therefore, sophisticated financial institutions (eg dealers) rarely mark at mid, bid or ask prices, but somewhere between the mid price and the bid price for assets or the mid price and the ask price for liabilities.

Counterparty credit risk

10. The financial institutions assert that when there is a legally enforceable right of offset in the event of bankruptcy (eg a master netting agreement) their net exposure to the counterparty (or the counterparty's net exposure to the entity) is the only relevant amount. In the example, the net open counterparty credit risk exposure on a portfolio basis (12) is less than the exposure on an instrument-by-instrument basis (14) because the entity's exposure to the counterparty is partially offset by the effective collateral in the form of the amount the entity

owes to the counterparty. This assumes that there is a legally enforceable right of offset in the event of bankruptcy by either party.