

STAFF PAPER

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IASB® meeting

Project	Dynamic Risk Management (DRM)	
Paper topic	Feedback summary: Designation of expected cash flows and impact on imperfect alignment	
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1. Introduction

1. This paper provides a summary of feedback from outreach on the designation of financial assets and financial liabilities based on expected cash flows in the DRM model and the impact of changes in prepayment assumptions on the recognition and measurement of imperfect alignment.
2. We are not asking the Board to make decisions at this meeting. However, we welcome Board members' comments on any feedback that was unclear, that provides new information, or that needs further research.

2. Key messages in this paper

3. The key messages included in this paper can be summarised as follows:
 - (a) Participants supported the Board's tentative decision for the use of expected (ie behaviouralised), instead of contractual, cash flows for prepayable financial assets, demand deposits, and future transactions. Many participants asked the Board to also address use of behaviouralised interest rate risk exposure in equity book within the DRM model. Further feedback on this topic is set out in paragraphs 10–13.

- (b) Feedback from participants confirmed that the use of interest rate options is not prevalent for managing prepayment risk, primarily due to costs reasons. Participants said that they typically behaviouralise cash flows based on expected prepayment amounts and timing. Further feedback on this topic is set out in paragraphs 16–18.
- (c) Most participants expressed a view that changes in prepayment assumptions should not necessarily lead to the immediate recognition of imperfect alignment in profit or loss (ie P&L volatility). Specifically, they said that the effect of changes in prepayment assumptions related to unhedged positions should be excluded when measuring alignment. For this reason, most participants suggested the Board consider allowing the designation of a layer (eg bottom layer) in the DRM model. This would be different to the Board’s tentative decision to allow designation of a percentage (proportion) of a portfolio in the DRM model. Further feedback on this topic is set out in paragraphs 25–41.

3. Structure of this paper

- 4. We have separately analysed feedback related to the following topics:
 - (a) Expected cash flows (Section 4);
 - (b) Managing prepayment risk (Section 5); and
 - (c) Changes in prepayment assumptions of the designated portion—impact on imperfect alignment (Section 6).
- 5. For each topic we provide:
 - (a) summary of the Board’s discussions and tentative decisions;
 - (b) summary of the feedback received; and
 - (c) staff observations to provide further context and information related to the feedback.
- 6. Question for the Board is included in Section 7 of the paper.

4. Expected cash flows

4.1 Summary of the Board's discussions and tentative decisions

7. For the purpose of applying the DRM model, the Board tentatively agreed to the use of expected (ie behaviouralised), instead of contractual, cash flows for financial instruments such as prepayable financial assets, demand deposits, and future transactions, that are dynamically managed for interest rate risk.
8. The Board tentatively decided that financial assets and future transactions that are dynamically managed for interest rate risk and meet the qualifying criteria for the asset profile, should be designated as as a portfolio in the DRM model.
9. The Board also tentatively decided that portfolios should be defined consistently within the bank's interest rate risk management policies and procedures. Furthermore, the Board tentatively decided that portfolios should share similar risk characteristics and that a bank, at a minimum, should consider different currencies and the existence of prepayment features when defining the portfolios.

4.2 Summary of feedback received

10. Overall, there was broad support among participants for the DRM model to be based on expected/behaviouralised rather than contractual cash flows. In their view, this would enable the financial statements to be better aligned with an entity's interest rate risk management strategy and activities (risk management view).
11. Participants said that they model the profile and volume of expected prepayments within a prepayable fixed interest rate asset portfolio. This behaviouralisation of the cash flows is based on the expectations of the portfolio as a whole taking into account historical prepayment rates, and not on an exposure-by-exposure basis. They also model core demand deposits by identifying a core element of the demand deposit portfolio and treating that element as having a longer-term fixed interest rate liability profile, taking into consideration behavioural factors.
12. In addition, many participants said they also model the deemed interest rate risk exposure in their equity book (equity model book) as part of their dynamic risk management as it represents a sizeable portion of their dynamically managed interest rate risk exposures. In their views, including the equity model book as part

of the DRM model would achieve closer alignment with their risk management view and therefore, meet the objective of the DRM model, as well as be consistent with the regulatory framework.¹ For this reason, they were supportive of the Board considering the equity model book when further developing the DRM model.

13. Finally, participants supported the Board's principles-based approach with regards to the requirements for defining and designating portfolios within the DRM model (see paragraph 9). However, they said that, to ensure consistent application, the DRM model should include sufficient application guidance that would provide clarity on key matters, for example what would be considered 'similar prepayment features' for the purpose of portfolio definition.

4.3 Staff observations

14. The staff acknowledge the feedback described in paragraph 12, noting that the Board tentatively decided to consider whether to include equity as part of the DRM model in the second phase of developing the model, hence the Board has yet to deliberate this topic. See also paragraphs 36–37 of agenda paper 4B for this meeting.

5. Managing prepayment risk

5.1 Summary of the Board's discussions and tentative decisions

15. During development of the DRM model, the Board discussed the approaches applied by entities to manage prepayment risk and how those approaches could be addressed in DRM. The Board noted that:
 - (a) a common approach when managing prepayable financial assets is to estimate customer behaviour, allocate the resulting expected cash flows into maturity buckets and use linear interest rate derivatives (ie derivatives other than options), to align the asset profile with the target profile. This was considered as part of the first phase in the development of the DRM model.

¹ These participants referred to Interest Rate Risk in the Banking Book framework (IRRBB) which is part of the Basel Committee on Banking Supervision capital framework's Pillar 2 (Supervisory Review Process).

- (b) non-linear derivatives (such as options) may be used to manage prepayment risk. Nonetheless, based on limited research, the Board observed that the use of interest rate options in the context of dynamically managed interest rate risk exposures, although not absent, is not widespread due to market constraints, costs and increased complexity when compared with interest rate swaps. Therefore, the Board concluded that the staff should seek feedback from the outreach on whether interest rate options should be specifically addressed in the second phase of the DRM research project as an extension of the DRM core model.

5.2 Summary of feedback received

16. Participants confirmed that the use of interest rate options is not prevalent for risk management, primarily due to cost reasons. Almost all participants said they typically behaviouralise cash flows and manage the repricing gap based on expected prepayment amounts and timing.
17. Some participants mentioned that in their jurisdiction, banks are compensated for the loss of interest income due to prepayments through a penalty fee charged to customers. Managing prepayment risk is therefore not considered necessary in this situation. Similarly, a participant mentioned that in their jurisdiction loans are primarily variable rate loans and therefore, managing prepayment risk is not a major issue for them.
18. However, a few participants said that if there is an opportunity to incorporate the use of derivatives with optionality (such as swaptions) in the DRM model to manage prepayment risk (for example, mortgages that could be partially prepaid) this might make it easier for banks to make use of such derivatives. In their view, this would contribute to stabilising net interest income in line with their risk management view.

5.3 Staff observations

19. The staff note that the few participants who asked the Board to consider incorporating interest rate options in the DRM model (see paragraph 18) did not provide specific suggestions as to how these derivatives could be incorporated into the model or accounted for in a dynamic environment. For example, in situations

where multiple options with different strike dates are used in combination with derivatives without optionality (eg plain-vanilla interest rate swaps), or where there is no one-to-one relationship between the hedged item and hedging instrument.

6. Changes in prepayment assumptions of the designated portion—impact on imperfect alignment

6.1 Summary of Board’s discussions and tentative decisions

Changes in prepayment assumptions

20. During development of the DRM model, the Board considered the impact of changes in prepayment assumptions and how this should be considered in context of the DRM model. The Board concluded that, for the purpose of the DRM model, changes in assumptions, such as prepayment assumptions, cause imperfect alignment.² This is because when a change in prepayment assumption occurs, it indicates that management’s estimation about when a loan (or portfolio of loans) will mature was not met ie estimation was different to actual maturity.
21. Therefore, the Board considered that some degree of imperfect alignment should be captured by measurement *when changes* in prepayment assumptions *occur*, because the assumption can have an impact on the degree on alignment to date, not just on a forward-looking basis.
22. Finally, the Board noted that changes in prepayment assumptions can cause imperfect alignment by being either under or over-hedged. Specifically, the Board tentatively decided to retain the ‘lower of test’. As a result:
 - (a) in the case of over-hedging, the difference between changes in fair value of the designated and the benchmark derivatives is presented in the statement of profit or loss as imperfect alignment;
 - (b) to fully communicate the impact of imperfect alignment, disclosures will be required in the case of under-hedging.

² Imperfect alignment is the extent to which the asset profile, in conjunction with the designated derivatives, are not aligned with the target profile.

Designation approach

23. The Board tentatively decided that a percentage of a portfolio of qualifying financial assets should be eligible for designation in the DRM model, provided that:
- (a) the designated percentage is consistently applied to all expected cash flows within the portfolio;
 - (b) the same percentage of a portfolio of financial assets is applied to a related portfolio of future transactions; and
 - (c) designation of a percentage of a portfolio is consistent with a bank’s risk management strategy.
24. Regarding growth, the Board tentatively agreed that an entity may choose to designate a proportion of growth in the target profile provided the designated percentage is consistent with the risk management strategy, and the designated amount is the same as the amount of growth designated as part of the asset profile.

6.2 Summary of feedback received

Feedback on changes in prepayment assumptions

25. In response to the Board’s conclusions noted in paragraphs 20–22, most participants expressed a view that a change in prepayment assumptions should not necessarily lead to the immediate recognition of a gain or loss (ie imperfect alignment). Their views included:
- (a) *changes in prepayment assumptions affect unhedged positions*—many participants said that the effect of changes in assumptions that relate to unhedged positions should not result in the recognition of imperfect alignment. These participants said that they only hedge a layer of nominal amounts of their prepayable assets which is considered stable ie bearing low prepayment risk, with the remaining layers left unhedged (see paragraphs 28–32). Consequently, they argue that changes in prepayment assumptions would therefore generally only affect unhedged layers.
 - (b) *changes in prepayment assumptions should be reflected in NII over time*—other participants were of the view that the effects of changes in assumptions (ie changes in customers’ behaviour) should be reflected in

net interest income (NII) prospectively over time because the effect of these changes (eg the mortgage prepayment assumption) ultimately result in change to future NII. Another argument cited in support of this view was that prepayment can be driven not only by the managed risk (eg interest rate risk) but also by other factors (eg divorce).

26. These participants also said that reflecting the effect of *all* changes in prepayment assumptions would be a change from current practice. They are currently applying one of the following approaches: ‘bottom layer’ approach (see paragraphs 28–32), or ‘first payments made/received’ approach (applied in the context of cash flow hedge accounting; considered conceptually similar to the bottom layer approach).
27. Most participants, therefore, requested the Board to further consider to what extent changes in prepayment assumptions should be recognised as imperfect alignment within the DRM model. This would depend on the designation approach ie what portion of nominal amounts of assets would be designated in the DRM model.

Feedback on designation approach

28. As described in paragraphs 23–24, the DRM model allows for designation of a *percentage* (proportion) of a portfolio, which is sometimes considered a ‘vertical slice’ of the portfolio. Only a few comments were received about the percentage approach. In general, participants considered that because this approach would result in a proportion of undesignated risk positions recognised as imperfect alignment, it neither reflects their risk management view nor provides operational relief to them.
29. As summarised in agenda paper 4A for this meeting, instead of percentage approach, most participants said the Board should allow designation of a *layer* of nominal amounts of the qualifying assets. Applying a layer approach is sometimes considered a ‘horizontal slice’ of the portfolio. In their view, allowing designation of only a layer of prepayable assets would avoid profit or loss volatility arising from undesignated risk positions as discussed in paragraph in paragraph 25(a).
30. This feedback includes comments from participants who suggested that the Board, in effect, codify the accounting approaches currently applied in specific jurisdictions. For example, many European banks said that inclusion of ‘bottom

layer' approach in the DRM model is important as it is one of the aspects of the EU carve-out. In addition, a Canadian bank pointed out that the requirements issued by the Financial Accounting Standards Board in the US also include a similar approach—the 'last-of-layer' method.

31. Proponents of bottom layer approach said that this approach is operationally simple because it does not require tracking and amortisation. Applying this approach allows an entity to not recognise any gain or loss in profit or loss, unless and until prepayments are high enough to breach the ceiling of the bottom layer. In their view, adopting this approach would make the DRM model also more operable.
32. In the light of the DRM model objective to better reflect entity's risk management view, the staff asked participants what the 'bottom layer' would represent. Their comments are summarised in paragraphs 33–41.

Bottom layer approach reflecting bank's risk management view

33. Some participants said allowing designation of a bottom layer in the DRM model would be representative of their risk management view because they often hedge only the bottom layer of nominal amounts of prepayable assets with derivatives.
34. Specifically, they are of the view that, consistent with bank's risk management strategy, risk managers are responsible for undertaking risk management activities for the bottom layer only. The remaining layer(s) of the nominal amounts of prepayable assets (upper layers) are left unhedged. For this reason, these participants expressed the view that the impact of changes in past prepayment assumptions should not affect profit or loss unless the ceiling of the bottom layer is breached, because the risk management view was not to hedge the upper layers that are susceptible to changes in customer behaviours.
35. The following example could illustrate application of a bottom layer approach that reflects risk management view.

Bank X has a CU100 million portfolio of prepayable fixed interest rate loans with a 5-year contractual maturity. The bank expects loans that have a total principal amount of CU35 million to have been prepaid before the end of the contractual term. Therefore, CU65 million is expected to remain outstanding for the full five years. On this basis, the risk managers of the bank decide that the bottom layer to be managed for interest rate risk is CU60 million, recognising that there is a margin of error in the estimate of CU65 million. The risk managers of the bank then decide to transact a 5-year swap to pay fixed interest and receive variable interest on a notional amount CU60 million. For risk management and hedge accounting purposes the bottom layer is CU60 million, and therefore as long as at least CU60 million of loans remain outstanding for the full contractual term, the dynamic risk management activity is considered a success by the bank. In other words, no loss would be recognised unless and until the level of prepayments exceeds CU40 million. Table 1 summarises this example.

Description	CU millions
Contractual cash flows	100
Expected cash flows	65
Notional amount of traded derivatives	60
Bottom layer for risk management view	60
Bottom layer for accounting purposes	60

36. In the participants’ views, the reason why the bank separated the mortgage portfolio into the upper and bottom layers is that it estimated that the maximum amount of prepayments would be CU40 million. The inverse assumption is that the bank expects no prepayment in the bottom layer (CU60 million). This is the basis why banks deem all subsequent prepayments to be attributable to the upper layers.
37. These participants said that for them the accounting would simply reflect the risk management view ie reflect the effects of choosing to hedge the repricing risk arising from changes in interest rates of only the bottom layer and not the upper layer(s) of the portfolio. The resulting accounting outcome of this approach would be such that any prepayment, by design, would be assumed as related to the unhedged ie upper layer(s) and therefore, not cause imperfect alignment, unless and until the level of prepayments breach the ceiling of bottom layer.

38. These banks said that failure to represent this approach when applying the DRM model would be considered a departure from their risk management view and therefore, inconsistent with the objective of DRM model.

Bottom layer approach only for accounting purposes

39. In contrast, other participants recommended the Board permit a bottom layer approach solely for the purpose of minimising imperfect alignment (ie ineffectiveness) without explicitly asserting that such an approach would faithfully reflect their risk management view. This included a participant who said that the bottom layer would be merely an accounting concept—a ‘work-around’ to minimise profit and loss volatility arising from changes in prepayment assumptions.
40. The staff understand this feedback to mean that the bottom layer in this scenario would not be based on a layer that represents risk management. In other words, the portion designated in the DRM model would not necessarily correspond to the portion the risk managers would be hedging; for example, risk managers could hedge a larger portion of nominal amounts. However, for accounting purposes, a bottom layer will be determined by selectively using the derivatives transacted for risk management purposes.
41. Using a similar fact pattern to paragraph 35, the following example illustrates bottom layer approach used for accounting purposes only.

Unlike the scenario in paragraph 35, Bank Y decides *not* to adopt a bottom layer approach for risk management. As a result, risk managers transact a 5-year swap to pay fixed interest and receive variable interest on a notional amount CU65 million (ie based in expected cash flows). The bank, however, adopts a bottom layer approach solely for accounting purposes by designating in hedge accounting only CU45 million. In this context, the bottom layer of CU45 million includes ‘accounting buffer’ to ensure that the ceiling of bottom layer determined for accounting purposes is not breached. Applying this approach, for hedge accounting purposes, as long as CU45 million of loans remain outstanding for the full contractual term (ie level of prepayments does not exceed CU55 million), no accounting loss would be recognised. Nonetheless, it is acknowledged that this would be inconsistent with the

risk management view under which CU65 million are risk managed; not CU45 million. Table 2 summarises this example.

Description	CU millions
Contractual cash flows	100
Expected cash flows	65
Notional amount of traded derivatives	65
Bottom layer for risk management view	N/A
Bottom layer for accounting purposes	45

6.3 Staff observations

42. The staff observe that under both approaches no gains or losses would be recognised in profit or loss unless prepayments breach the ceiling of the established bottom layer, irrespective of whether the bottom layer reflects a risk management view or an accounting view. The difference, however, lies in whether the risk management view is most faithfully reflected in accounting.
43. Coupled with the view some participants hold that a bottom layer approach would align hedge accounting with the risk management view (see paragraphs 33–38), the staff note that overall, comments in support of bottom layer approach focus on two main perceived benefits:
- (a) stability in profit or loss because *less* prepayments would affect the measurement of imperfect alignment; and
 - (b) the operational relief it provides ie avoidance of operational difficulties such as tracking and amortisation. However, the staff note that tracking would not be avoided entirely. As individual portfolios are being separated onto bottom and upper layers, some tracking would still be required. For example, for each *individual* portfolio, banks would need to track notional amounts and underlying original interest rates, as well as the designated bottom layer for each of portfolio. Tracking such information would be required for the purpose of periodic assessment to determine whether the level of prepayments in each individual portfolio has breached the ceiling of the designated bottom layer.
44. Finally, the staff observe that the application of approaches such as the bottom layer approach only for accounting purposes, generally aims to achieve outcomes that

avoid profit and loss volatility. Applying these approaches, the designated amount is often based on the derivatives transacted for risk management and finding hedged items that are eligible for hedge accounting to match that. This is different from risk management view and the objective of the DRM model, which contemplate that the extent of hedged position is driven by the (desired) net open risk position.

7. Question for the Board

45. The staff would like to ask the Board the following question.

Question for the Board

Does the Board have any questions or comments on any feedback that was unclear, that provides new information, or that needs further research?