



21 June 2016

Submitted via EBA website

1 Churchill Place
Canary Wharf
E14 5HP
United Kingdom

barclays.com

Dear Sirs,

EBA Consultation paper on guidelines on corrections to modified duration for debt instruments

Barclays welcomes the opportunity to comment on the EBA Consultation paper on guidelines on corrections to modified duration for debt instruments.

Please find in Appendix 1 our comments and responses to the four questions of the consultation.

We hope that you find these comments and our response to the questions useful. We would be very happy to discuss these and any related points further. Please do not hesitate to contact Dipal Patel (dipal.patel@barclays.com or +44 20 3134 1105) if you have any questions or comments on the issues raised in this response.

Yours sincerely,

A handwritten signature in blue ink that reads "G. L. Romain".

Gary Romain

Appendix 1 – Detailed response

Question 1: Do stakeholders agree with the proposed approaches to correct the modify duration?

Regulation (EU) No 575/2013 (CRR) establishes two standardised methods to calculate market risk capital requirements for general interest rate risk which are the maturity-based and the duration-based calculation of general risk.

For the duration-based calculation, the CRR mandates the EBA to issue guidelines (referred to Guidelines in this document) on how duration should be corrected for instruments subject to prepayment risk. These guidelines are particularly important for Barclays given that the standardised interest rate risk capital charge is a significant component of Barclays' overall capital requirement for market risk (over 25% as per our consolidated 2015 Pillar 3 report).

In the present consultation, the EBA proposes two approaches for the correction. Below is our assessment of the feasibility and merits of the two approaches:

The 1st approach

The 1st approach requires institutions to treat a debt instrument with prepayment risk as if it were a combination of a plain vanilla bond and an embedded option.

Institutions then correct the modified duration of the plain vanilla bond with the change in value of the embedded option. This is estimated according to its theoretical delta after a 100 basis points movement in interest rates. The theoretical delta of the embedded option may, on occasions, overestimate the correction that should be applied to the modified duration. At this point, institutions are required to correct for this negative convexity effect stemming from the embedded option.

This means that institutions would compute first order (delta) and second order (gamma) derivative on the value of the embedded option. We consider this a challenge as Barclays usually does not value an embedded prepayment option separately from the respective bond. Both components are included in a trading book as one daily fair value. Neither regulatory nor accounting standards require an institution to bifurcate and separately value prepayment risk.

This also applies to the future *Minimum capital requirements for market risk (FRTB)* where the Sensitivity-based Method does not require bifurcation of financial instruments when computing sensitivities. This is the case as well for behavioural risks which are captured under the Residual Risk Add-on.

The EBA proposes to only include gamma effects when it is addressing a loss underestimation produced by the first-order estimation (delta). This approach is derived from the existing treatment of equity options under the delta-plus methodology. However, contrary to the delta-plus methodology, the recognition of the negative gamma effect is performed at the instrument level and not at a portfolio level which in turn makes portfolio-level hedging strategies ineffective. This negative outcome is further described in our answer to question 2.

Implementing the 1st approach would require the development of new valuation models and systems for the purpose of this calculation. The necessary investments in systems and associated cost would only be of temporary value until FRTB becomes effective in the EU.

For these reasons we expect banks to prefer the 2nd approach that does by comparison not require temporary infrastructure investments and restrictions on the inclusion of gamma effects which we believe the EBA should reconsider given its negative implications on hedging.

The 2nd approach

The 2nd approach requires institutions to directly recalculate the change in value of the whole instrument resulting from a 100 basis point movement in interest rates.

We prefer the 2nd approach over the 1st approach as it allows prepayment risk to be reflected in a manner consistent with how it is measured and monitored by institutions. It is based on existing valuation models and would not require significant investment in new processes and infrastructure.

We suggest that the Guidelines should additionally specify that valuation models need to include transaction costs and behavioural factors when such factors are material. If this is the case, it should not be appropriate to identify these factors as a separate item that is independent of valuation models. For further details on the inclusion of behavioural factors, please refer to our responses to Question 3.

We also suggest the Guidelines to define the valuation models to be used to re-compute the value of the instrument following a shift in interest rate rates. To be consistent with FRTB, these should be models used by the institutions' independent risk control unit that is responsible for reporting market risks or actual profits and losses to senior management.

Question 2: Do stakeholders agree that, under the 1st approach, the negative gamma stemming from the embedded option should be considered in the calculation of the correction?

Under the 1st approach, the gamma effect is only included to avoid underestimating losses under the first-order estimation (delta).

This approach is derived from the treatment of equity options under the delta-plus methodology of the standardised market risk approach for equities.

Under the delta-plus methodology, the gamma impacts of individual options referring to the same underlying type (e.g. same market for equity risk, same commodity, etc) are summed up. When the sum is negative there is an additional capital requirement, and when the sum is positive the gamma effect is ignored. In other words, this methodology allows the gamma risks arising from long and short positions to be netted. The consequence is that hedging strategies are possible.

In contrast, the 1st approach includes negative gamma effects at an instrument level. Consequently, gamma hedging strategies will not be recognised in regulatory capital calculations. Specifically, if an institution hedges its interest rate risk on a long instrument and with a short position in another instrument, the gamma effect of one instrument will not be netted against the gamma effect on its hedge even if the hedge is economically effective.

We believe that the proposed methodology should be revised to allow for hedging strategies to be recognised by considering gamma effects in all cases (i.e. including it for short callable and long puttable positions with positive gamma effects). This would be more consistent with the FRTB Sensitivity-based method where for a given currency full netting of gamma effects is applied. This change would reduce the complexity of the 1st approach as institutions would not need to selectively include the gamma effects, which would make it more risk sensitive.

Question 3: Do stakeholders agree with the inclusion of behavioural factors in the calculation of the correction?

Under both approaches, it is proposed that the effect of transaction costs and behavioural factors (additional factors) are reflected where relevant. The guidelines propose the consideration of these factors to reflect the fact that some of the options' buyers, in particular retail clients, might decide not to execute the option despite of potential financial benefits.

In practice, additional factors are included in institutions' valuation models such as for example for the valuation of mortgage-backed securities. These are valued by discounting expected future cash flows estimated from both the contractual cash flows of the underlying mortgages and the assumptions on the rate of prepayment over the life of the instrument.

One way to estimate prepayment is using the industry benchmark established by the Public Securities Association (PSA). The PSA benchmark "100 percent PSA" assumes an increasing rate of prepayment during the first 30 months of the mortgage and then a 6% annual rate until maturity. The model can also be scaled up or down based on market-implied prepayment rates while additional behavioural factors associated with the age of the mortgages are considered. For instance, in the early years of a mortgage, customers are less expected to relocate to a different home, they are less able and inclined to refinance their mortgages or make extra payments of principal which is unrelated to the evolution of interest rates.

The prepayment pattern and associated cash flows of the instrument can also be estimated through more complex models including Monte-Carlo simulations. Such models may consider refinancing arising from behavioural factors driven by the age of the mortgage pool (similar to the PSA model), but also other factors such as seasonal effects, employment or other personal circumstances (e.g. loss of employment, divorce).

For other instruments such as callable bonds, the additional factors are not material and are therefore not considered relevant in valuation models.

The proposed formulae treat additional factors as a separate item:

- In the 1st approach, additional factors are not included in the delta and gamma of the embedded option;
- In the 2nd approach, additional factors are also not included in the duration calculation performed based on institutions valuation models (firm term).

The inclusion of additional factors as a separate item would not seem appropriate since, where relevant, such factors should already be embedded in the respective valuation models. Specifically, they should be part of the delta and gamma of the embedded options in the 1st approach and the duration (first term) in the 2nd approach. We would welcome confirmation from the EBA that the intention is not to require a separate valuation of additional factors if such are already included in an institution's repricing methodology.

For clarity, we also suggest that the formulae be amended. The guidelines should specify that the valuation of the option (1st approach) or institutions valuation models (2nd approach) should include behavioural factors when these are relevant for valuation.

Question 4: In case the approaches proposed to correct the negative gamma and/or the behavioural factors are deemed to be too burdensome, what simpler alternative adjustments may be applied to correct the modified duration?

- We agree that the gamma effect should be considered but do not agree with the negative gamma methodology proposed for its recognition under the 1st approach. We suggest that the gamma effect be included irrespective as to whether the effects are positive or negative.
- We agree that behavioural factors should be included in the calculation of the correction when these have a material impact on valuation, in which case these factors should already included in institutions valuation models. The behavioural factors should not constitute an additional adjustment to the duration computed using institutions valuation models.

Please refer to question 2 and question 3 for details.