ANNEX 2J

MARKET RISK

CALCULATION OF GENERAL INTEREST RATE RISK ON DEBT INSTRUMENTS

THE DURATION-BASED APPROACH

INTRODUCTION

1. This Annex stipulates the conditions in relation to the calculation of general interest rate risk when using the duration-based approach by credit institutions for the purposes of market risk.

SCOPE AND APPLICATION

2. This Annex adopts and implements the requirements outlined in the *EBA Guidelines on corrections to modified duration for debt instruments under the second subparagraph of Article 430(3) of Regulation (EU) 575/2013 (EBA/GL/2016/09).*

3. This Annex specifies how to apply corrections to the calculation of the modified duration to reflect prepayment risk, in accordance with the mandate conferred to the EBA in the last subparagraph of Article 340(3) of Regulation (EU) No 575/2013 ("the Regulation").

4. This Annex applies to credit institutions authorised under the Banking Act 1994 in relation to the calculation of the modified duration for debt instruments which are subject to prepayment risk for the purposes of own funds requirements for General Interest Rate Risk under the standardized approach in accordance with Article 340 of the Regulation.

DEFINITIONS

5. Words and expressions used in this Annex which are also used in the Act but which are not defined herein, shall have the same meaning assigned to them as in the Act.

6. For the purpose of this Annex, the following definitions apply:

   (a) a callable bond is a type of debt instrument that gives the issuer of the bond the right, but not the obligation, to redeem the bond at some point before it reaches its date of maturity; and

   (b) a puttable bond is a type of debt instrument that gives the holder of the bond the right, but not the obligation, to demand early repayment of the principal.

CORRECTION TO THE MODIFIED DURATION TO REFLECT PREPAYMENT RISK

7. For the purposes of the correction of the modified duration calculation for all debt instruments subject to prepayment risk, referred to in the second subparagraph of Article 340(3) of the Regulation, credit institutions shall apply one of the following:

(a) the formula set out in paragraph 8;

(b) the formula set out in paragraph 9.

8. For the purposes of paragraph 7(a) of this Annex, credit institutions shall apply the following formula to correct the Modified Duration and compute a Corrected Modified Duration ('CMD'):

$$CMD = MD \times \Phi \times \Omega$$

where:

MD = modified Duration as in Art. 340(3)

$\Phi = \frac{B}{P}$

$\Omega = 1 + \Delta + \frac{1}{2} \Gamma dB + \Psi$

P = $price\ of\ the\ bond\ with\ the\ embedded\ optionality$

$B = theoretical\ price\ of\ the\ vanialla\ bond$

$\Delta = delta\ of\ the\ embedded\ option$

$\Gamma = gamma\ of\ the\ embedded\ option$

$\Psi =$ $where\ not\ considered\ in\ the\ calculation\ of\ \Delta\ and\ \Gamma, and\ where\ material, additional\ factor\ for\ transaction\ costs\ and\ behavioural\ variables\ consistent\ with\ an\ Internal\ Rate\ of\ Return\ ('IRR')\ shift\ of\ 100\ basis\ points\ ('b.p.')$

$dB = Change\ in\ value\ of\ the\ underlying.$

9. For the purposes of paragraph 7(b) of this Annex, credit institutions shall apply the following formula to re-compute directly the CMD by repricing the instrument after a shift of 100 b.p. in the IRR:

$$CMD = \frac{P_{-\Delta r} - P_{+\Delta r}}{2 \times P_0 \times \Delta r} + \Psi$$

where:

$P_0 = the\ current\ market\ price\ of\ the\ product;$

$P_{\mp\Delta r} = theoetical\ price\ of\ the\ product\ after\ a\ negative\ and\ a\ positive\ IRR\ shock\ equals\ to\ \Delta r;$

$\Delta r = hypothetical\ IRR\ change\ of\ 50\ b.p.$

$\Psi = where\ not\ considered\ in\ the\ calculation\ of\ P_{(\mp\Delta r)}, and\ where\ material, additional\ factor\ for\ transaction\ costs\ and\ behavioural\ variables\ consistent\ with\ a\ IRR\ shift\ of\ 100\ b.p.$

10. The computation of the additional factor Ψ need only to be considered if material and shall never lead to a shorter CMD than if it had not been considered in the calculation.

11. For the purposes of assessing the additional factor Ψ in accordance with paragraph 9 of this Annex, credit institutions shall take into account all of the following:

(a) that transaction costs which reduce the value of the option, making the option unlikely to be executed below the threshold established by the transaction costs;
(b) that there are behavioural factors suggesting that some clients, in particular retail clients, may not always exercise an option, despite it being in the money, due to some known circumstances including the following:
    i. where the remaining principal is close to the initial amount lent, leading some 'aggressive' borrowers to leave or refinance at an early stage;
    ii. in the case of borrowers with the largest loan size who have the largest gain from prepayment as the cost attached to prepayment is a fixed amount.

12. The assessment of the additional factor Ψ shall be based on historical data, obtained from the credit institutions' own experience or from external sources. Data on the behavioural factors referred to in paragraph 11(b) may be obtained from the assessment of other balance sheet elements subject to prepayment risk, such as those observed for retail clients in the non-trading book.

13. Credit institutions shall calibrate the additional factor Ψ by assessing significant divergences between the real behaviour historically observed for a type of client and the theoretical behaviour that would have been envisaged for counterparties acting in a purely rational way.

14. The calibration of the additional factor Ψ, due to behavioural factors referred to in paragraph 13, shall be made where a relevant amount of these instruments with prepayment risk are held in the trading book and especially where the counterparties are retail clients. Additional factors shall not be considered for the embedded options where the institution has the right to call for an early termination of the instrument.