Formula for calculating loss on prepayment

The formula set out in the Credit Contracts and Consumer Finance Regulations 2004 (CCCFR) calculates the difference between the present value of outstanding loan repayments discounted at the prevailing interest rate and the lump sum repayment of the unpaid balance at the time of full prepayment.

Example

John's mortgage has a current balance of $240,303.15. Six months ago, he fixed the interest rate on his loan for two years at 5.20%. After this fixed period the floating interest rate will apply.

John's circumstances have changed and he now wants to repay his loan in full today - 6 months and 10 days after he fixed his interest rate, and 10 days since the last payment's due date.

The current interest rate for similar contracts with a term of 12 months is 4.50% (12 months being the nearest term to the unexpired portion of the fixed interest period of the fixed rate contract that is to be fully prepaid)

For the remaining fixed interest period the amount of $25,861.42 would have been payable ($1,521.26 x 17 months), including total interest charges of $17,524.52.

Applying the above formula, a reasonable estimate of the creditor's loss arising from the full prepayment is calculated as follows:

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Unpaid Balance = $240,303.15
+ Interest to end of fixed period = $17,524.52
- Payable to end of fixed period = $25,861.42
= Balance at end of fixed period (EB) = $231,966.25

Original Interest Rate = 5.2%
Fixed term end Date = 16/05/2024, 521 days
Current Interest Rate (i) = 4.5%
Payments per annum (f) = 12
Payment Value (p) = $1,521.26
Payments yet to be made (n) = 17
Days since last Payment (d) = 10 (02/12/2022)

(v) = 0.99626401
Value of Forgone Payments (vfp) = $242,967.63
vfp = p*((1-(v^n))/(i/f)*((1+i)^(d/365)))+(v^n)*(1+i)^(d/365)*EB

Loss = $2,664.48
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A reasonable estimate of the creditor's loss is $2,664.48.

Note: For the purpose of this example only, calculations have been rounded to 9 decimal places.

Application of CCCF Regulation 11

Regulation 11 applies to a fixed rate contract if—

a. the contract has a fixed interest period for part, but not the whole, of the term (whether or not the contract provides for default interest charges); and

b. the contract is fully prepaid during that fixed interest period; and

c. the contract requires payments of equal amounts to be made at equal intervals during that fixed interest period; and

d. all the variables contained in the formula set out in Regulation 11 can be determined with reasonable accuracy.

Calculation of reasonable estimate of creditor's loss if interest rate fixed for part of term

1. For the purposes of Section 54(1)(a) of the CCCFR, a reasonable estimate of a creditor's loss arising from a full prepayment of a fixed rate contract may be determined in accordance with the following formula: LRE = VFP − u

where—

LRE	is the reasonable estimate of the creditor's loss arising from the full prepayment
VFP	is the value of forgone payments calculated in accordance with subclause (2)
u	is the unpaid balance at the time of the full prepayment.

2. The value of forgone payments is calculated in accordance with the following formula:

$$VFP = p \times \left(\frac{1 - v^n}{\frac{i}{f}} \right) \times (1 + i)^{\frac{d}{365}} + v^n \times (1 + i)^{\frac{d}{365}} \times EB$$

where —

VFP	is the value of forgone payments
p	is the amount of each payment payable under the fixed rate contract during the fixed interest period in which the contract is fully prepaid
v	is calculated in accordance with subclause (3)
n	is the number of payments yet to be made under the fixed rate contract during the fixed interest period in which the contract is fully prepaid
f	is the number of payments to be made per year under the fixed rate contract during the fixed interest period in which the contract is fully prepaid
i	is the annual fixed interest rate determined in accordance with subclauses (4) and (5) and expressed as a decimal fraction
d	is the number of days between the payment due date that immediately precedes the date of full prepayment and the date of full prepayment
EB	is the expected unpaid balance at the end of the fixed interest period in which the fixed rate contract is fully prepaid calculated in accordance with subclause (6).

3. The variable v is calculated in accordance with the following formula:

$$v = \frac{1}{1 + \frac{i}{f}}$$

where—

i is the annual fixed interest rate determined in accordance with subclauses (4) and (5) and expressed as a decimal fraction

f is the number of payments to be made per year under the fixed rate contract during the fixed interest period in which the contract is fully prepaid.

4. The annual fixed interest rate *i* is the annual fixed interest rate that at the date of full prepayment of the fixed rate contract the creditor usually offers on a fixed rate contract that—

   a. is of the same or a similar type as the fixed rate contract that is to be fully prepaid; and

   b. has a fixed interest period that is—

      i. equal to the unexpired portion of the fixed interest period of the fixed rate contract that is to be fully prepaid; or

      ii. closest to the unexpired portion of the fixed interest period of the fixed rate contract that is to be fully prepaid, whether shorter or longer (if the creditor does not offer a contract with a fixed interest period equal to the unexpired portion of the fixed interest period of the fixed rate contract that is to be fully prepaid).

5. If more than one annual fixed interest rate applies under subclause (4)(b)(ii), the annual fixed interest rate *i* is the higher or highest of those annual fixed interest rates.

6. The expected unpaid balance at the end of the fixed interest period is calculated in accordance with the following formula:

$$EB = u + IC - TP$$

where—

EB is the expected unpaid balance at the end of the fixed interest period in which the fixed rate contract is fully prepaid

u is the unpaid balance at the time of the full prepayment

IC is the total amount of the interest charges that would have been paid in accordance with the contract during the unexpired portion of the fixed interest period in which the fixed rate contract is fully prepaid

TP is the total of all payments that would have been paid in accordance with the contract during the unexpired portion of the fixed interest period in which the fixed rate contract is fully prepaid.

7. If a reasonable estimate of a creditor's loss arising from a full prepayment determined in accordance with the formula in subclause (1) is less than zero, then the reasonable estimate of that creditor's loss arising from the full prepayment is zero.