

Pursuant to Article 307, items (1) and (3) of the Credit Institutions Act (Official Gazette 117/2008) and Article 13, paragraph (3) of the Credit Union Act (Official Gazette 141/2006) and Article 43, paragraph (2), item (9) and paragraph (3) of the Act on the Croatian National Bank (Official Gazette 75/2008), the Governor of the Croatian National Bank hereby issues the

Decision
on the effective interest rate of credit institutions and credit unions
and on service contracts with consumers

I GENERAL PROVISIONS

Subject matter
Article 1

This Decision prescribes:

- 1) the uniform method of calculating and disclosing effective lending rates on loans granted and effective deposit rates on deposits received, and
- 2) content and form of information provided by credit institutions to consumers, which are needed to compare different offers and to take an informed decision on concluding a contract.

Legal persons subject to the application of the Decision
Article 2

- (1) This Decision shall apply to:
 - 1) credit institutions with registered offices in the Republic of Croatia, with the exception of electronic money institutions,
 - 2) branches of third-country credit institutions authorised by the Croatian National Bank to provide services,
 - 3) credit institutions of the Member State, providing services through branches or directly providing mutually recognised services within the territory of the Republic of Croatia, and
 - 4) credit unions with registered offices in the Republic of Croatia.

(2) Notwithstanding paragraph (1) of this Article, the provisions of this Decision concerning the calculation and disclosure of effective deposit rate on received deposits and the provisions of this Decision on service contracts with consumers shall not apply to credit unions.

Definitions

Article 3

Individual terms used in this Decision shall have the following meaning:

(1) '**Effective interest rate**' (**hereinafter: EIR**) means an end-of-period rate of interest, reported at the annual level by applying the compound interest calculation method, by means of which discounted cash inflows are balanced against discounted cash outflows, which refer to loans granted or deposits received. In the case of loans, this rate is additionally adjusted for a one-off effect of discounted cash inflows and outflows based on a cash deposit, which is used as an instrument of collateral. In discounting, the actual (calendar) number of days in a month and a 365/366-day year are used. EIR shall be reported by rounding it to 2 decimal places.

(2) '**Loan**' means money lent by a creditor to a borrower (debtor), with or without purpose, which the borrower is obliged to repay, increased by the agreed interest, within a certain period of time and on certain conditions.

(3) '**Deposit**' means money placed by a depositor with a credit institution, with or without purpose, which the credit institution is obliged to return, increased by the agreed interest within a certain period of time and on certain conditions.

(4) '**Interest**' means a price of a loan or deposit (return on deposit), which depends on the nominal amount of loan (principal) or deposit, method and repayment period, as well as on the amount of the agreed or prescribed interest rate, representing, actually, a fee payable by the debtor for the borrowed principal for a certain period of time.

(5) '**Interest rate**' means a relative number p , showing the yield earned on 100 monetary units in the certain period of time (accounting period or time period), i.e. interest rate is the amount of interest on 100 monetary units in a particular unit of time. During the compounding period, the interest rate may be fixed or variable for units of time of the same duration. Interest rate for the basic accounting period is referred to as the nominal interest rate. The unit of time of the nominal interest rate may be any time period (e.g. year, half-year, month, etc.).

(6) '**Accounting period** or **time period** (or **compounding period** or **capitalisation period**)' means a period for which interest is calculated. The basic (main) accounting period and the level of interest rate are defined in a contract between the parties or are prescribed by law. Interest may be calculated annually, daily, etc.

(7) '**Proportional interest rate**' means an interest rate computed according to a length of the basic accounting period and a length of the actual accounting period.

(8) '**Equivalent interest rate**' means the rate of interest which yields the same interest amount on the same principal, irrespective of whether compounding is performed in periods longer or shorter than the period to which the nominal interest rate refers.

(9) '**Simple interest calculation method**' means an interest calculation method where at any capitalisation period, in the course of capitalisation, interest is always calculated on the original principal.

(10) '**Compound interest calculation method**' (interest on interest calculation method) means an interest calculation method where the calculated interest for the first accounting period is added to the original principal. In the following accounting period interest is thus calculated on the original principal increased by the amount of interest from the first accounting period. In all subsequent compounding periods, interest is calculated on the remaining principal increased by the interest calculated for the previous compounding period. More specifically, interest is calculated on interest as well (the so called anatocism).

(11) '**End-of-period interest calculation**' means an interest calculation method where interest is calculated and added to the principal, or paid out, at the end of the accounting period. In such a calculation, interest is calculated with respect to the original amount, i.e. principal at the beginning of the basic capitalisation period.

(12) '**Beginning-of-period interest calculation**', means an interest calculation method where interest is calculated in advance for the capitalisation period, i.e. at the beginning of the compounding period, with respect to the final amount of principal (amount at the end of the accounting period). After the calculation, interest is deducted from that principal at the beginning of the compounding period.

II ANNOUNCEMENT OF SERVICES AND SERVICE CONTRACTS

Announcement of services

Article 4

(1) Data on deposit and lending rates announced by a credit institution or credit union on their premises and commercial messages and advertisements in the media, which directly or indirectly show interest rate or some other amount considered as a part of the loan price, or deposit price, shall also contain effective interest rate.

(2) Effective interest rate shall not be less conspicuous than other data and a credit institution or a credit union shall, when disclosing it, use the term "effective interest rate". If this term is repeated, a credit institution or a credit union may use the abbreviation: EIR.

Service contracts

Article 5

(1) A credit institution shall disclose the effective interest rate to a consumer before the conclusion of a credit contract, i.e. before the conclusion of a deposit contract.

(2) A credit union shall disclose the effective interest rate to a member of that credit union before the conclusion of a credit contract.

(3) In addition to the EIR data, the credit institution shall disclose to a consumer all other information needed to compare different offers in order to take an informed decision on concluding a contract.

(4) On request and free of charge, the credit institution shall provide the consumer with a draft of the contract, unless the credit institution is at the time of filing the application unwilling to proceed to the conclusion of that legal arrangement. Before concluding the credit or deposit contract, the credit institution shall inform the consumer about his right to obtain the draft contract free of charge.

(5) A minimum content of information referred to in paragraph (3) of this Article and the obligatory elements of the draft contract shall imply, as appropriate, the information referred to in Article 306, paragraph (4) of the Credit Institutions Act for granting loans, i.e. the information referred to in Article 306, paragraph (5) of the same Act for accepting deposits.

(6) The information and the draft contract, referred to in paragraphs (1), (3) and (4) of this Article, shall be provided in writing, unless otherwise prescribed by a special law regulating consumer protection.

III METHODOLOGY FOR CALCULATING THE EFFECTIVE INTEREST RATE

Repayment table

Article 6

(1) The credit institution or credit union shall calculate the EIR in accordance with the repayment table, in a manner prescribed by the Instructions for the application of this Decision, constituting its integral part.

(2) When concluding a credit or deposit contract, a credit institution shall present the repayment table, together with a clearly stated effective interest rate, to the consumer. In addition, the credit institution shall enclose the repayment table with its credit or deposit documentation.

(3) When concluding a credit contract, a credit union shall present the repayment table, together with a clearly stated effective interest rate, to the credit union member. In

addition, the credit union shall enclose the repayment table with its credit documentation.

(4) The draft credit or deposit contract and credit or deposit contract shall contain the appropriate provision from which it is evident that the consumer or a member of the credit union have been informed of the effective interest rate and that the repayment table has been presented to them.

(5) In the case of loans and deposits where it is not possible to anticipate the amount and date of cash flows (current account and giro account overdrafts (i.e. permitted transaction account overdrafts), revolving lines of credit based on credit cards, etc.), it is not necessary to prepare the repayment table. In that case, the nominal interest rate shall be considered as the EIR, and in addition to the data on EIR, the credit institution shall also inform the consumer on possible other fees, commissions and similar cash flows related to these types of loans or deposits.

IV TRANSITIONAL AND FINAL PROVISIONS

Application of the Decision

Article 7

(1) On the day of entry into force of this Decision, the Decision on the uniform disclosure of the effective interest rate on loans and deposits (Official Gazette 74/2003) and the Decision on the uniform disclosure of the effective interest rate on loans of credit unions (Official Gazette 71/2007) shall cease to have effect.

(2) This Decision shall enter into force on the eighth day after the day of its publication in the Official Gazette, with the exception of the provisions of Article 2, paragraph (1), item (3) of this Decision, which shall enter into force on the date of accession of the Republic of Croatia to the European Union.

No.: 19-020/01-09/ŽR
Zagreb, 2 January 2009

Croatian National Bank
Governor
Željko Rohatinski m.p.

INSTRUCTIONS FOR

the implementation of the Decision on the effective interest rate of credit
institutions and credit unions
and on service contracts with consumers

These Instructions prescribe the methodology for calculating the effective interest rate on loans and deposits.

1 Mathematical background for the calculation of the effective interest rate

End-of-period compound interest rate calculation represents the basis of the uniform method of calculating the effective interest rate (EIR) on loans and deposits. The uniform method of calculating the EIR is based on the net present value. The EIR is that rate of interest by the application of which discounted cash inflows are balanced against discounted cash outflows, which refer to loans granted or deposits received, i.e. that rate of interest by the application of which a discounted series of net cash flows equals zero. In the case of loans, net cash flow k implies a difference between all payments to the creditor's account (credit institution's or credit union's inflows) and all payments made to the borrower (credit institution's or credit union's outflows) during the day k . Cash flows include any cash transfer between a borrower and a creditor, which is directly related to the granting of loan, i.e. representing a constituent part of the conditions for utilising the loan (e.g. disbursement of principal, loan instalment (annuity), one-off loan origination fee, periodical loan servicing fee, etc.), or which represents a condition for granting the loan (e.g. loan application fee). Similarly, in the case of deposits, net cash flow k implies a difference between all payments to the deposit-taker's account (credit institution's inflows) and all payments made to the depositor, i.e. owner of funds (credit institution's outflows) during the day k .

The starting point for deriving the above stated definition of the EIR is the following mathematical principle: the EIR represents a difference between the sum of the final amounts paid to a creditor, or deposit-taker, and the sum of the original amounts of payments made to a borrower, or depositor, expressed as a percentage of the sum of the original amounts of payments made to a borrower, or depositor, at the annual level. In mathematical terms, the EIR is defined as follows:

$$(1) \quad e = 100 \left[\left(1 + \frac{e_n}{100} \right)^{\frac{t}{n}} - 1 \right], \text{ where}$$

$$e_n = 100 \frac{\sum_k [FV_n(CF_k +)] - \sum_k [PV_0(CF_k -)]}{\sum_k [PV_0(CF_k -)]} = 100 \left\{ \frac{\sum_k [FV_n(CF_k +)]}{\sum_k [PV_0(CF_k -)]} - 1 \right\}$$

$$(2) \quad \left\{ \frac{\sum_k \left[(CF_k +) \left(1 + \frac{e_1}{100} \right)^{n-d_k} \right]}{\sum_k \left[(CF_k -) \left(1 + \frac{e_1}{100} \right)^{-d_k} \right]} - 1 \right\}$$

$$(3) \quad e_1 = 100 \left[\left(1 + \frac{e_n}{100} \right)^{\frac{1}{n}} - 1 \right]$$

The symbols have the following meanings:

e = EIR

e_n = EIR expressed at the level of n days of the loan term

e_1 = EIR expressed at the level of one day

t = number of days in a year (depends on the method of calculating the number of days)

n = total number of days of the loan term

$k = 0, 1, 2, \dots$

CF_{k-} = (sum) payments to a borrower during the day k (negative cash flow)

CF_{k+} = (sum) payments to a creditor during the day k (positive cash flow)

$FV_n(x)$ = future value of the x amount at the end of the day n

$PV_0(x)$ = present value of the x amount at the end of the day 0

d_k = number of days that passed from the day 0 to the observed cash flow on the day k .

By combining the above three expressions the equation for e is obtained.

Expressions (1) and (3) give $\left(1 + \frac{e_1}{100} \right) = \left(1 + \frac{e_n}{100} \right)^{\frac{1}{n}} = \left(1 + \frac{e}{100} \right)^{\frac{1}{t}}$ while substitution in (2)

$$1 + \frac{e_n}{100} = \frac{\sum_k \left[(CF_k +) \left(1 + \frac{e_1}{100} \right)^{n-d_k} \right]}{\sum_k \left[(CF_k -) \left(1 + \frac{e_1}{100} \right)^{-d_k} \right]} \quad \text{and} \quad \text{assumption} \quad e > -100 \quad \text{imply} \quad \text{that}$$

$$0 = \sum_k \left[(CF_k +) \left(1 + \frac{e}{100} \right)^{-\frac{d_k}{t}} \right] - \sum_k \left[(CF_k -) \left(1 + \frac{e}{100} \right)^{-\frac{d_k}{t}} \right], \text{ or}$$

$$\sum_k \left[NCF_k \left(1 + \frac{e}{100} \right)^{-\frac{d_k}{t}} \right] = 0, \text{ where } NCF_k = (CF_k +) - (CF_k -) = \text{net cash flow (net}$$

payment to creditor) during the day k .

2 Interest calculation

Interests may be calculated by applying the simple or compound interest calculation method. Irrespective of whether simple or compound interest calculation method is used, interest may be calculated and paid at the end or at the beginning of the period.

2.1 Simple interest calculation method

2.1.1 End-of-period interest calculation

When calculating interest by applying the simple interest calculation method at the end of the period, the following mathematical expressions are used:

- for years $I = \frac{C \times p \times g}{100}$
- for months $I = \frac{C \times p \times m}{1200}$
- for days $I = \frac{C \times p \times d}{36500}$, whereby 36500 may be replaced by 36600 or 36000,

depending on the method used,

where individual symbols have the following meanings:

C = principal amount

g = number of years

m = number of months

d = number of days

p = end-of-period interest rate, and

I = interest amount.

2.1.2 Beginning-of-period interest calculation

In contrast to end-of-period interest calculation, where a loan (debt or principal) is repaid after the expiry of the agreed term, increased by the accrued interest, in the case of interest calculation at the beginning of the period, principal is immediately reduced by the calculated interest, and after the expiry of the loan term, the borrower (debtor) is obliged to repay the entire amount of principal.

When calculating interest by applying the simple interest calculation method at the beginning of the period, the following mathematical expressions are used:

$$S_n = C_0 \left(1 - \frac{q}{100}\right) \quad \text{or} \quad S_n = C_0 - D, \text{ where}$$

S_n = present value of the future debt (disbursed amount)

q = beginning-of-period interest rate

C_0 = debt (principal) amount, and

D = discount amount.

The above expressions actually show the present value of principal which matures in one year. The principal that matures in n years is worth less today, so that converting into present value is also referred to as discounting, and interest factor used in discounting is called a discount factor.

By applying the simple interest calculation method, the amount of a discount may be calculated as follows:

- for years $D = \frac{C_0 \times q \times \text{years}}{100 + q \times \text{years}}$
- for months $D = \frac{C_0 \times q \times \text{months}}{1200 + q \times \text{months}}$
- for days $D = \frac{C_0 \times q \times \text{days}}{36500 + q \times \text{days}}$, whereby 36500 may be replaced by 36600 or 36000, depending on the method used.

where

D = discount amount

C_0 = principal amount, and

q = beginning-of-period interest rate.

2.2 Compound interest calculation method

2.2.1 End-of-period interest calculation

When calculating interest by applying the compound interest calculation method at the end of the period, the following mathematical expression is used:

$$C_n = C_0 \left(1 + \frac{p}{100} \right)^n.$$

Accordingly, the final value of C_n is obtained by multiplying the original value C_0 by $\left(1 + \frac{p}{100} \right)$ raised to the n power. This expression is also referred to as the end-of-period interest factor and is denoted by r. Accordingly, the formula for calculating the final value by applying the compound end-of-period interest calculation method, may be written as follows:

$$C_n = C_0 r^n.$$

Expression r^n is the final value of 1 monetary unit together with the end-of-period interest, for n periods and p interest rate.

2.2.2 *Beginning-of-period interest calculation*

The application of the compound beginning-of-period interest calculation method is somewhat more complex. The financial mathematics allows us to establish which beginning-of-period interest rate (q) corresponds to the end-of-period interest rate (p), which, in mathematical terms, may be expressed as follows:

$$C_0 \left(1 - \frac{q}{100}\right) = \frac{C_0}{1 + \frac{p}{100}}, \text{ implying that } p = \frac{100q}{100 - q}, \text{ or that } q = \frac{100p}{100 + p}.$$

In compounding at the beginning of the period, identical original amounts, identical interest rate, identical capitalisation and number of years yield greater final values, compared to compounding at the end of the period, since in the case of the latter, interest is calculated with respect to the value at the beginning of the year, while in beginning-of-period interest calculation, interest is calculated in relation to the value at the end of the year.

2.2.3 *Proportional and equivalent interest rate*

If a compounding period and a period to which a nominal interest rate relates are of equal length, the nominal interest rate may be directly used in the mathematical expression for interest calculation. It is often the case in practice that nominal interest rate is not adjusted to the accounting periods (e.g. interest rate is expressed at the annual level, while interest is calculated on a monthly basis). Consequently, the nominal interest rate should then be converted into the rate of interest for a shorter or longer time period, by applying two methods: proportional and equivalent.

Since in the case of the simple interest calculation method, the application of the nominal or appropriate proportional interest rate results in the identical final value, i.e. the identical interest rate, the issue of proportional and equivalent interest rate is not discussed in that section. However, in the case of the compound interest calculation method, the application of nominal interest rate and the appropriate proportional interest rate does not result in the identical final value of principal. The final or future value of principal is identical when nominal interest rate is used and when the appropriate equivalent interest rate is used, i.e. compound interests are identical. Accordingly, there are differences between proportional and equivalent interest rate in compound interest calculation method. In comparison with proportional interest rate, equivalent interest rate is more favourable for a debtor if interest is calculated for a period shorter than the period to which a nominal interest rate refers (which is generally the case in practice), while it is more favourable for a creditor when interest is calculated for a period longer than the period to which nominal interest rate refers.

Proportional interest rate is calculated with respect to the length of time period to which nominal interest rate refers and length of time period for which interest is calculated. Interest rate is converted to the basic compounding period by simply dividing the nominal interest rate by a ratio of the period to which it refers to the basic compounding period.

Example:

Annual interest rate is 20%. Proportional interest rate thus amounts to:

- a) 10%, in semi-annual compounding,
- b) 5%, in quarterly compounding, and
- c) 40%, in two-year compounding.

Equivalent interest rate is the rate of interest which for the identical principal yields the identical interest, irrespective of whether interest is calculated in longer or shorter time periods, compared to the period to which the nominal interest rate refers. It is calculated by using the following formula:

$$p' = 100 \left[\left(1 + \frac{p}{100} \right)^{\frac{1}{m}} - 1 \right], \text{ or } p' = 100 (\sqrt[m]{r} - 1), \text{ where}$$

p = annual end-of-period interest rate

p' = equivalent interest rate for time periods shorter (longer) than one year, and

m = number of compounding periods.

Interest rate is converted to the basic compounding period in accordance with the principle of capital equivalency maintenance.

Example:

Annual interest rate is 20%. Equivalent interest rates for semi-annual, quarterly and two-year compounding are calculated below.

- a) semi-annual compounding ($m=2$)

$$p' = 100 \left[\left(1 + \frac{20}{100} \right)^{\frac{1}{2}} - 1 \right] = 9.54\% \text{ semi-annually}$$

b) quarterly compounding (m=4)

$$p' = 100 \left[\left(1 + \frac{20}{100} \right)^{\frac{1}{4}} - 1 \right] = 4.66\% \text{ quarterly}$$

c) two-year compounding (m=1/2)

$$p' = 100 \left[\left(1 + \frac{20}{100} \right)^2 - 1 \right] = 44.00\% \text{ in a two-year period}$$

Equivalent interest rate may be calculated by applying the method of interest calculation at the end and at the beginning of the period. Formula for calculating end-of-period equivalent interest rate is the following:

$$p'd = 100 \left[\left(1 + \frac{p}{100} \right)^{\frac{d}{365}} - 1 \right], \text{ where}$$

p'd = equivalent interest rate for a particular number of days on the annual basis

p = annual interest rate, and

d = number of days for which equivalent interest rate is calculated.

The mathematical expression for the beginning-of-period equivalent interest rate calculation is the following:

$$q' = 100 \left[1 - \left(1 - \frac{q}{100} \right)^{\frac{1}{m}} \right], \text{ where individual symbols have the following meanings:}$$

q' = beginning-of-period equivalent interest rate

q = annual beginning-of-period interest rate, and

m = number of compounding periods

3 Methods of loan repayment

Two methods of calculating the instalments (annuities) are given below.

A loan may be repaid in equal instalments (annuities), where, in the course of repayment, the interest amount decreases, while the principal payment increases, as a result of the fact that interest is calculated on the remaining amount of debt, which is decreasing. Another repayment method is that instalments (annuities) are variable, while principal payments are equal in the course of the loan repayment.

The individual symbols have the following meanings:

C = principal amount

p = annual end-of-period interest rate

C_k = principal (remaining debt) at the end of the period k

R_k = amount of instalment (annuity) at the end of the period k

n = number of loan repayment periods

Q_k = amount of principal payment at the end of the period k

I_k = amount of interest at the end of the period k

3.1 Loan repayment in equal instalments (annuities)

A loan C should be repaid in n equal instalments (annuities) R maturing in equal time units at the end of each period, at an annual end-of-period interest rate p . The compounding period equals the period between the maturity of instalments (annuities). Instalment (annuity) is calculated from the expression:

$$R_k = R = C \frac{r^n(r-1)}{r^n-1}, \text{ where } r = 1 + \frac{p}{100},$$

interest at the end of period k amounts to
$$I_k = \frac{C_{k-1}p}{100},$$

principal payment at the end of period k amounts to
$$Q_k = R - I_k,$$

principal at the end of period k amounts to
$$C_k = C_{k-1} - Q_k,$$
 where the previous four expressions apply to all the loan repayment periods $k = 1, \dots, n$.

The sum of all principal payments equals the loans amount
$$C = \sum_{k=1}^n Q_k,$$

and since $R = I_k + Q_k$ applies to each period k

when all the periods are added, it results in $\sum_{k=1}^n R_k = \sum_{k=1}^n I_k + \sum_{k=1}^n Q_k$ and

$n \times R = \sum_{k=1}^n I_k + C$, i.e. total interests are

$$\sum_{k=1}^n I_k = n R - C,$$

and the last principal payment always equals the remaining debt from the penultimate period

$$Q_n = C_{n-1}.$$

3.2. Loan repayment in equal principal payments

A loan C should be repaid in variable instalments (annuities) R_k at the end of each period k in which principal payments are equal, at the annual end-of-period interest rate p and repayment period n .

Equal principal payments for each period k are calculated first.

$$Q_k = Q = \frac{C}{n}, k = 1, \dots, n$$

Remaining debt at the end of the period k

$$C_k = C_{k-1} - Q \quad \text{or} \quad C_k = C \left(1 - \frac{k}{n}\right)$$

Interest at the end of the period k

$$I_k = \frac{C_{k-1} p}{100} \quad \text{or} \quad I_k = C \left(1 - \frac{k-1}{n}\right) \frac{p}{100}.$$

Variable instalment (annuity) at the end of the period k equals

$$R_k = I_k + Q \quad \text{or} \quad R_k = \frac{C}{n} \left[(n-k+1) \frac{p}{100} + 1 \right].$$

Total interests equal

$$\sum_{k=1}^n I_k = \frac{Cp}{200} (n+1),$$

and $Q_n = C_{n-1}$ applies.

4 Calculation of EIR on loans and deposits

4.1 Methodological explanations

(1) EIR is calculated based on the repayment table, the elements of which are determined in item 4.2 for loans, i.e. item 4.3 for deposits. When concluding a credit or deposit contract with a consumer or a credit union member, a credit institution or a credit union is obliged to present to the consumer or to the credit union member the repayment table without the auxiliary columns for the EIR calculation, together with a clearly stated EIR. The repayment table containing the auxiliary columns for the EIR calculation, as well as the annual percentage rate (APR) in the case of a credit relationship, should be enclosed by the credit institution or credit union to its loan or deposit documentation. The auxiliary columns for the calculation of the EIR are the columns showing net cash flow and discounted net cash flow and in the case of a credit contract, the auxiliary columns are also the columns showing discounted loan repayments and discounted security deposit flows. The empty columns of the repayment table need not be printed. The EIR should be reported in the repayment table rounded to 2 decimal places, and should not be less conspicuous than other data (information). The repayment table should also contain the date of its drawing up and the note that the reported EIR is valid as at the date the repayment table preparation.

(2) Above the heading of the repayment table, a credit institution or a credit union is obliged to indicate its full name and address, as well as the contact information. The repayment table which is presented to the consumer or to the credit union member when the credit or deposit contracts are being concluded, must contain a signature of the responsible employee of the credit institution or credit union. The responsible employee's signature may be handwritten or in a form of electronic signature, in accordance with the special act.

(3) Drawing up of the repayment table is based on the assumed regular flow of all transactions (cash flows), implying regularity of all parties in meeting their obligations arising from the contract. The contract is considered to be valid in the period for which it has been concluded. For the purpose of these Instructions, it is assumed that a credit institution or credit union and a borrower, and a credit institution and a depositor, meet their obligations under the agreed terms and conditions and at maturity. For instance, if the credit contract stipulates a larger interest rate in the case a consumer or credit union member fails to repay the loan to a credit institution or credit union at maturity of an

individual instalment (annuity), that fact should be disregarded and the repayment table should be prepared on the basis of the rate of interest envisaged for regular (timely) loan repayments.

(4) In the case of credit or deposit contracts containing the clauses on variability of interest rates, fees and commissions included in the EIR calculation, the EIR is calculated under the assumption that the rate of interest and other fees are fixed, i.e. identical to the ones valid as at the calculation date. A credit institution or credit union are obliged to indicate in the repayment table the nominal interest rate, specifying whether it is fixed or variable, or a combination of fixed and variable interest rate, as well as the periods to which it relates (e.g. a credit contract stipulates a fixed interest rate in the first two years of loan utilisation and variable interest rate in the remaining period of loan utilisation).

(5) In model calculation of the EIR on loans, and for the purpose of public communication, the hypothetical loan from the example is assumed to be granted on the first date of the month and that interim interest is calculated for a minimum of one month.

(6) In the case of credit lines, if dates of funds withdrawal cannot be predetermined, each withdrawal of funds is considered as a special loan, for which a separate repayment table is prepared with the disclosed EIR. If a particular loan is granted in several tranches, the loan origination fee, account management fee and other fixed charges, or those related to the total loan amount should be divided into individual tranches, proportionate to their amount, and the respective aliquot parts of these fees and commissions should be included in the EIR calculation on the actual maturity date.

(7) In the case of credit contracts where the amount and date of cash flows cannot be anticipated (current account and giro account overdrafts (i.e. permitted transaction account overdrafts), credit card revolving credits, etc.), the repayment tables need not be prepared, since such loans are repaid from the flows that arrive first in the consumer's account. For the purpose of calculating and disclosing the EIR on such loans, only the nominal interest rate is included in the calculation. If a credit institution charges different interest rates on different amounts of overdrafts permitted, the entire scale of the respective effective interest rates should be calculated and disclosed, stating precisely the marginal amounts of overdrafts up to which an individual EIR applies. A credit institution is obliged to notify the consumer on other possible fees, commissions and similar cash flows related to this type of loan.

(8) In the case of deposit contracts where the amount and date of cash flows cannot be anticipated (current accounts and giro accounts (i.e. transaction accounts), savings deposits and demand deposits, etc.) the repayment tables need not be prepared. For the purpose of calculating and disclosing the EIR, only the nominal interest rate is included in the calculation. If a credit institution charges different interest rates on different balances in these accounts, the entire scale of the respective effective interest rates

should be calculated and disclosed, stating precisely the marginal balances in these accounts up to which an individual EIR applies. A credit institution is obliged to notify the consumer of other possible fees, bonuses and similar cash flows related to these accounts. If deposit is not debited by costs included in the EIR calculation and if there are no additional bonuses on deposit, when the interest rates are calculated once a year or more frequently, by applying the equivalent interest rate, or when the nominal and effective interest rate are identical, a credit institution is not obliged to draw up the repayment table. In that case, a credit institution should indicate in the deposit contract that the EIR equals nominal interest rate.

(9) A credit institution should indicate in the repayment table the currency in which the entered amounts are reported. Foreign currency credit contracts and foreign currency deposit contract are reported in that foreign currency, while kuna credit contracts and kuna deposit contracts, as well as credit and deposit contracts indexed to foreign currency, are reported in kuna at the exchange rate effective as at the date of the repayment table preparation. A credit institution must indicate in the repayment table the exchange rate based on which the previous conversion has been carried out. If a credit institution uses more than one reference rate of exchange (e.g. buying rate when a loan is granted, selling rate when a loan is repaid), it should indicate in the repayment table each individual exchange rate used and when they were applied and it should include the reference exchange rate differences in the EIR and in loan repayment and deposit withdrawal. Exceptionally, credit and deposit contracts indexed to foreign currency may be reported in foreign currency (instead of in kuna), provided that loans are granted and repaid, or deposits are received and withdrawn, by applying the same reference rate of exchange (e.g. midpoint exchange rate of the CNB). As regards foreign currency credit contracts and foreign currency deposit contracts, where fees and commissions are determined and charged in kuna, they should be converted into the respective foreign currency, at the midpoint exchange rate of the Croatian National Bank, effective as at the date of the repayment table preparation, for the purpose of the EIR calculation.

4.2 Calculation of the EIR on loans

The EIR on loans is calculated on the basis of the repayment table (e.g. by means of the interest rate table calculator). The repayment table consists of the following columns:

1. *Time Period* - denotes an ordinal number of the period in which a particular cash flow occurs. Time 0 is the period when the first cash flow occurs or the agreed date when the loan is made available, whichever occurs first. The final period is the one in which the final cash flow occurs.
2. *Maturity Date* - denotes a date when a particular cash flow occurs. It is important to indicate the exact date, since the actual (calendar) number of days in a month and a 365/366-day year are used for calculating the EIR. In calculating and disclosing the

EIR on loans withdrawn in tranches, a consumer or a credit union member should be required to state the planned withdrawal dates and the amounts of the tranches.

3. *Loan Disbursement* - the amount of loan, i.e. a portion of the loan (the amount of a tranche), to be disbursed should be entered in this column, under the period, or the date, when it is certain that the disbursement will take place, i.e. when a consumer or credit union member expects that he/she will withdraw an individual tranche or the entire loan amount. In the case of loans that are withdrawn in tranches, the amount of loan should be indicated in the repayment table.

4. *Other Disbursements* - other disbursements carried out by a credit institution or credit union on the basis of the concluded credit contract should be entered in this column, apart from the disbursement of security deposit and interest on the paid in security deposit.

5. *Instalment (annuity)* - repayment may be made in equal annuities, variable annuities with equal principal payments, variable annuities with variable principal payments, and in another manner. The elements constituting the instalment (annuity) should be indicated in the repayment table.

6. *Principal Payment* – a portion of instalment (annuity) allocated to the principal that is to be repaid in each period should be entered in this column.

7. *Interest Payment* – a portion of instalment (annuity) allocated to the interest to be paid in each period is recorded in this column, including the interim interest. A reference should be made in the repayment table to the nominal interest rate, specifying whether the rate of interest is fixed or variable. If the interest rate is variable, that fact should be disregarded in calculating and reporting the EIR, and the calculation is made by applying the nominal interest rate valid as at the date of calculation (see item 4.1, paragraphs (3) and (4)).

8. *Other Payments* – all other payments made by the borrower, based on the concluded credit contract, should be entered in this column.

In terms of these Instructions, other payments shall imply all possible payments that are directly related to the loan, i.e. to the terms and conditions of utilising or granting the loan:

- loan application fee,
- loan origination fee,
- loan management fee, servicing fee and bank statement fee,

- costs of securing loan repayment through insurance policies, with the exception of endowment insurance policy (life assurance policy payable both on death and on survival), which are eventually born by a borrower and represent a precondition for loan approval,
- fee for the unwithdrawn loan amount in credit lines or other loans,
- fee for keeping pledge as an instrument of collateral for loan repayment,
- other similar fees and commissions directly related to the loan.

In terms of these Instructions, the following shall not be included in the calculation of the EIR:

- appraisal costs for immovables and movables,
- public notary fees,
- fees for obtaining a land register certificate,
- fees for obtaining various certificates, statements, licenses and decisions from the competent bodies and authorities,
- default interests or any other charges or penalties incurred as a result of the borrower's default on credit contract terms and conditions,
- postage, telegram and telefax charges, and
- other similar fees and commissions.

Where a precondition for loan approval is underwriting of an endowment insurance policy (payable both on death and on survival), with the attached supplementary insurance (e.g. accident insurance), the cost arising from supplementary insurance is included in the EIR calculation and is entered in column 8. *Other payments*.

If, at the time of the announcement or prior to the conclusion of a credit contract, a credit institution or a credit union is not familiar with the amount of insurance cost, which cannot thus be included in the EIR calculation, a credit institution or a credit union shall notify the public and the consumer or credit union member, in the appropriate manner, that underwriting of insurance policy represents the precondition for a loan approval, i.e. a precondition for approving the loan under the offered terms and conditions and that the insurance cost is not included in the EIR calculation.

9. *Outstanding Loan Balance* – the outstanding loan balance at a particular period should be entered in this column. It equals the amount of loan disbursed, reduced by the repaid portion of principal until that time (cumulated principal payments).

10. *Security Deposit Flow* - all cash flows related to security deposit are entered in this column - payment and disbursement of security deposit, possible costs related to security deposit and possible interest on security deposit, bearing a positive sign when the funds flow from a consumer or a credit union member to a credit institution or credit union (payment) and a negative sign when the funds flow from a credit institution or credit union to a consumer or credit union member (disbursement or interest).

11. *Note (description)* – it contains a short description of a cash flow at a particular period.

12. *Net Cash Flow* – it represents a sum of principal payments (column 6), interest (column 7) and other payments (column 8) (positive cash flow) reduced by a sum of loan disbursement (column 3) and other disbursements (column 4) (negative cash flow) at a particular period. All the balances reported in columns 3 to 9 carry a positive sign. Net cash flow may be positive or negative - a positive sign implying net inflow of funds to a credit institution or credit union (payments) and a negative sign implying net outflow of funds from a credit institution or credit union (disbursements).

13. *Discounted Net Cash Flow* – the balances obtained by discounting net cash flows from column 12 at the annual percentage rate of loan cost by applying

$$NCF_k \left(1 + \frac{APR}{100}\right)^{-\frac{d}{t}} \text{ should be entered in this column.}$$

NCF_k stands for a net cash flow at a particular time, while APR in the discount factor denotes the annual percentage rate. The exponent $\frac{d}{t}$ represents the sum of the following three components:

- (1) number of days from time 0 date to 31 December of the same year, as a proportion of the number of days in the time 0 year,
- (2) number of years between the year of the cash flow that is being discounted and time 0 year, excluding these two years,
- (3) number of days between the date of the period in which the cash flow that is being discounted occurs and 31 December of the previous year, as a proportion of the number of days in the year of the cash flow that is being discounted.

The equation for computing $\frac{d}{t}$ may be expressed as follows:

$$\frac{d}{t} = \left[\frac{yyyy(0).12.31. - dat(0)}{t(0)} \right] + [yyyy(k) - yyyy(0) - 1] + \left[\frac{dat(k) - (yyyy(k) - 1).12.31.}{t(k)} \right]$$

$$t(0) = 1 + yyyy(0).12.31. - yyyy(0).01.01.$$

$$t(k) = 1 + yyyy(k).12.31. - yyyy(k).01.01.$$

$dat(0)$ is time 0 date, while $dat(k)$ is the date of the period in which the cash flow that is being discounted occurs.

Since APR is the rate to be calculated, the methodology for its calculation is given below.

The repayment table ends with the line item *Total*, which follows the last cash flow in the final period. In this line item, in the column *Discounted Cash Flow*, all discounted net cash flows from the individual time periods are added together. APR is an

approximation, rounded to 2 decimal places, of the equation

$$\sum_k \left[NCF_k \left(1 + \frac{APR}{100} \right)^{-\frac{d}{i}} \right] = 0.$$

The obtained annual percentage rate is used for computing the EIR according to the equation

$$EIR = APR \times \frac{TDDL}{TDDL - TDSDF},$$

where *TDDL* and *TDSDF* are explained under items 14 and 15.

14. *Discounted Loan Disbursements* – in this column, discounted values of loan disbursements from column 3 are reported. The previously obtained *APR* is used, and it is discounted to time 0 by applying the equation

$$DLD_k = \left[(LD_k) \left(1 + \frac{APR}{100} \right)^{-\frac{d}{i}} \right],$$

where DLD_k denotes discounted loan disbursement at a particular period, LD_k loan disbursement at a particular period, while other symbols have the same meanings as in item 13. The sum of discounted loan disbursements, $TDDL = \sum_k DLD_k$, which is used to compute the effective interest rate, described in item 13, is shown at the intersection of the line item *Total* and column *Discounted Loan Disbursements*.

15. *Discounted Security Deposit Flow* – in this column, discounted values of security deposit flows from column 10 are reported. The previously obtained *APR* is used, and it is discounted to time 0 by applying the equation

$$DSDF_k = \left[(SDF_k) \left(1 + \frac{APR}{100} \right)^{-\frac{d}{i}} \right],$$

where $DSDF_k$ denotes discounted security deposit flow at a particular period, SDF_k security deposit flow at a particular period, while other symbols have the same meanings as in item 13. The sum of discounted security deposit flows, $TDSDF = \sum_k DSDF_k$, which is used to calculate the effective interest rate, described in item 13, is shown at the intersection of the line item *Total* and column *Discounted Security Deposit Flows*.

The repayment table that is presented to a borrower should not contain auxiliary columns 12 to 15 and the annual percentage rate (*APR*), which are used for the calculation of the effective interest rate. The repayment table that is enclosed with the loan documentation should contain these columns and *APR* as well.

Example 1

A hypothetical example for completing the repayment table is given below.

A consumer negotiates a loan with a credit institution in the kuna equivalent of EUR 100 000.00. On 1 May 2007, a consumer pays a loan application fee in the amount of HRK 1 400.00. Disbursement of the approved amount is requested on 1 July 2007. The consumer is obliged to pay a security deposit in the amount of HRK 100 000.00, after the credit institution has granted the loan and before the loan is disbursed. After the loan repayment, the credit institution will refund the security deposit to the consumer, increased by 1% annual interest (computed by applying the end-of-period interest rate). If the loan is granted, the consumer will have to pay an origination fee in the amount of HRK 10 000.00. This is a front-end fee and it should be paid immediately after the loan is granted on 1 June 2007. When the loan enters repayment, the consumer should pay interim interest, which is calculated as the regular agreed, end-of-period, fixed rate of interest of 8%, by applying the equivalent method. Therefore, HRK 4 849.72 of interim interest should be paid by the consumer on 1 August 2007. The first instalment (equal annuity) of HRK 101 112.47 falls due on 1 November 2007. The other instalments mature every 3 months, until 1 August 2009 (a total of 8 instalments). In the course of loan repayment, the credit institution also charges a flat-rate fee once a year for loan management and delivery of bank statements (i.e. account servicing) in the amount of HRK 25 and a transaction fee for loans indexed to foreign currency of 0.4% of the sum of all payments during the respective year. These fees are payable with every fourth instalment. Disbursement and repayment of the loan is made at the mid-point exchange rate of the Croatian National Bank, which stands at 7.395318 as at the date of the repayment table preparation. In calculating interest, in accordance with the general terms and conditions of the credit institution, relating to loans, the institution applies the British method (number of calendar days in a month and actual number of days in a year).

The repayment table in the table calculator is presented below:

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 Cerigradska 3 fax 01 765 4321
 10100 Zagreb

Date of table preparation: 3 April 2007

Currency HRK indexed to foreign currency Instalment in HRK 101 112.47 Loan amount in HRK 739 531.80 CNB mid-point exchange rate 7.395318 Annual percentage rate (%) 9.81 Effective interest rate (%) 10.04
 Nominal interest rate (%) 8.00 fixed Instalment in f/c 13 672.50 Loan amount in f/c 100 000.00

Time period	Maturity date	Loan disbursement	Other disbursements	Instalments	Principal payment	Interest payment	Other payments	Outstanding loan balance	Security deposit flow	Note (description)	Net cash flow	Discounted net cash flow	Discounted loan disbursement	Discounted security deposit flow
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
0	1 May 2007						1 400.00	0.00		Loan application fee	1 400.00	1 400.00	0.00	0.00
1	1 Jun 2007						10 000.00	0.00	100 000.00	Loan origination fee and payment of security deposit	10 000.00	9 920.81	0.00	99,208.12
2	1 Jul 2007	739 531.80						739 531.80		Loan disbursement at mid-point exchange rate	-739 531.80	-728 052.48	728 052.48	0.00
3	1 Aug 2007					4 849.72		739 531.80		Interim interest	4 849.72	4 736.63	0.00	0.00
4	1 Nov 2007			101 112.47	86 626.69	14 485.78		652 905.11		1. instalment	101 112.47	96 451.91	0.00	0.00
5	1 Feb 2008			101 112.47	88 358.80	12 753.67		564 546.31		2. instalment	101 112.47	94 204.93	0.00	0.00
6	1 May 2008			101 112.47	90 326.78	10 785.69		474 219.52		3. instalment	101 112.47	92 061.24	0.00	0.00
7	1 Aug 2008			101 112.47	90 206.40	9 263.28	1 642.80	384 013.13		4. instalment (includes loan servicing fee and transaction fee)	101 112.47	89 920.33	0.00	0.00
8	1 Nov 2008			101 112.47	93 611.26	7 501.21		290 401.87		5. instalment	101 112.47	87 829.20	0.00	0.00
9	1 Feb 2009			101 112.47	95 424.15	5 688.33		194 977.72		6. instalment	101 112.47	85 784.78	0.00	0.00
10	1 May 2009			101 112.47	97 419.00	3 693.47		97 558.72		7. instalment	101 112.47	83 848.92	0.00	0.00
11	1 Aug 2009			101 112.47	97 558.72	1 910.96	1 642.80	0.00	-102 179.78	8. instalment (includes loan servicing fee and transaction fee) and refund of security deposit increased by interest	101 112.47	81 893.70	0.00	-82 758.14
Total		739 531.80	0.00	808 899.78	739 531.80	66 082.38	14 685.60		-2 179.78		85 617.70	0.00	728 052.48	16 449.98

Note: The disclosed effective interest rate is valid as at the date of drawing up the repayment table. The instalment includes principal payment, interest payment, loan servicing fee and transaction fee.
 The mid-point exchange rate of the CNB, valid as at the date of repayment table preparation, is applied in loan disbursement and repayment and EIR calculation.

Signature of a responsible person

Example 2

Data in example 2 are identical to the data in example 1, except that instead of one exchange rate two different exchange rates are used - one at the time of loan disbursement and another one at loan repayment. Example 2 is the following:

A consumer negotiates a loan with a credit institution in the kuna equivalent of EUR 100 000.00. On 1 May 2007, a consumer pays a loan application fee in the amount of HRK 1 400.00. Disbursement of the approved amount is requested on 1 July 2007. The consumer is obliged to pay a security deposit in the amount of HRK 100 000.00, after the credit institution has granted the loan and before the loan is disbursed. After the loan repayment, the credit institution will refund the security deposit to the consumer, increased by 1% annual interest (computed by applying the end-of-period interest rate). If the loan is granted, the consumer will have to pay an origination fee in the amount of HRK 10 000.00. This is a front-end fee and it should be paid immediately after the loan is granted on 1 June 2007. When the loan enters repayment, the consumer should pay interim interest, which is calculated as the regular agreed, end-of-period, fixed rate of interest of 8%, by applying the equivalent method. Therefore, HRK 4 864.27 of interim interest should be paid by the consumer on 1 August 2007. The first instalment (equal annuity) of HRK 101 415.79 falls due on 1 November 2007. The other instalments mature every 3 months, until 1 August 2009 (a total of 8 instalments). In the course of loan repayment, the credit institution also charges a flat-rate fee once a year for loan management and delivery of bank statements (i.e. account servicing) in the amount of HRK 25 and a transaction fee for loans indexed to foreign currency of 0.4% of the sum of all payments during the respective year. These fees are payable with every fourth instalment. The loan is disbursed at the CNB's buying rate, which stands at 7.373132 as at the date of repayment table preparation, while the loan repayment is made at the CNB's selling rate, which equals 7.417504 as at the date of repayment table preparation. In calculating interest, in accordance with the general terms and conditions of the credit institution, relating to loans, the institution applies the British method (number of calendar days in a month and actual number of days in a year).

The repayment table in the table calculator is presented below:

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 10100 Zagreb

Date of table preparation: 3 April 2007

Currency HRK indexed to foreign currency Instalment in u HRK 101 415.79 Loan amount in HRK 737 313.20 CNB buying rate 7.373132 **Annual percentage rate (%) 10.38** **Effective interest rate (%) 10.64**
 Nominal interest rate (%) 8.00 fixed Instalment in f/c 13 672,50 Loan amount in f/c 100 000.00 CNB selling rate 7.417504

Time period	Maturity date	Loan disbursement	Other disbursements	Instalments	Principal payment	Interest payment	Other payments	Outstanding loan balance	Security deposit flow	Note (description)	Net cash flow	Discounted net cash flow	Discounted loan disbursement	Discounted security deposit flow
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
0	1 May 2007						1 400.00	0.00		Loan application fee	1 400.00	1 400.00	0.00	0.00
1	1 Jun 2007						10 000.00	0.00	100 000.00	Loan origination fee and payment of security deposit	10 000.00	9 916.46	0.00	99 164.62
2	1 Jul 2007	737 313.20						741 750.40		Loan disbursement at buying rate - loan balance at selling rate	-737 313.20	-725 242.20	725 242.20	0.00
3	1 Aug 2007					4 864.27		741 750.40		Interim interest	4 864.27	4 744.66	0.00	0.00
4	1 Nov 2007			101 415.79	86 886.56	14 529.24		654 863.84		1. instalment	101 415.79	96 489.76	0.00	0.00
5	1 Feb 2008			101 415.79	88 623.86	12 791.94		566 239.99		2. instalment	101 415.79	94 119.44	0.00	0.00
6	1 May 2008			101 415.79	90 597.75	10 818.05		475 642.24		3. instalment	101 415.79	91 860.99	0.00	0.00
7	1 Aug 2008			101 415.79	90 477.07	9 291.07	1 647.65	385 165.17		4. instalment (includes loan servicing fee and transaction fee)	101 415.79	89 608.35	0.00	0.00
8	1 Nov 2008			101 415.79	93 892.08	7 523.71		291 273.09		5. instalment	101 415.79	87 410.95	0.00	0.00
9	1 Feb 2009			101 415.79	95 710.40	5 705.39		195 562.69		6. instalment	101 415.79	85 265.42	0.00	0.00
10	1 May 2009			101 415.79	97 711.24	3 704.55		97 851.45		7. instalment	101 415.79	83 236.41	0.00	0.00
11	1 Aug 2009			101.415.79	97 851.45	1 916.69	1 647.65	0.00	-102 179.78	8. instalment (includes loan servicing fee and transaction fee) and refund of security deposit increased by interest	101 415.79	81 189.74	0.00	-81 801.36
Total		737 313.20	0.00	811 326.34	741 750.40	66 280.63	14 695.31		-2 179.78		90 277.41	0.00	725 242.20	17 363.26

Note: The disclosed effective interest rate is valid as at the date of drawing up the repayment table. The instalment includes principal payment, interest payment, loan servicing fee and transaction fee. At loan disbursement, i.e. when calculating the amounts in columns 3. and 4., the CNB's buying rate, valid as at the date of repayment table preparation, was applied, while at loan repayment, i.e. when calculating the amounts in columns 5.-8., the CNB's selling rate, valid as at the date of repayment table preparation, was applied. Both exchange rates are included in the EIR calculation.

Signature of a responsible person

4.3 Calculation of the EIR on deposits

Similar to the calculation of the EIR on loans, the EIR on deposits is computed from the repayment table (e.g. by using the table calculator). The repayment table should contain the following columns:

1. *Time Period* - denotes an ordinal number of the period in which a particular cash flow occurs. Time 0 is the period when the first cash flow occurs. The final period is the one in which the final cash flow occurs.

2. *Maturity Date* - denotes a date when a particular cash flow occurs. It is important to indicate the exact date, since the actual (calendar) number of days in a month and a 365/366-day year are used for calculating the EIR. In calculating and reporting the EIR on deposits that are periodically paid in/withdrawn (e.g. housing savings, pension savings, annuity savings), a consumer should be required to state the date and the amount of the expected payments/withdrawals (if payments/withdrawals are periodical). In most cases, a credit institution itself would be capable of determining the dynamics of payments/withdrawals, since it prepares the annuity savings plans, etc., where the payment/withdrawal dates are precisely indicated.

3. *Deposit Payment* – the payable amount of deposit, or part of deposit should be entered in this column, under the time period, or on the date, when it is certain that the payment will be made, i.e. when the consumer expects to place a deposit. In the case of deposits paid in instalments, the target amount of deposit should be indicated in the repayment table. In the event of payment in instalments, the repayment table should also make reference to the fact that these are the expected payments.

4. *Credits* – amounts credited to the consumer's deposit account should be entered in this column (e.g. amount of accrued interest, government incentives, bonuses accrued in the course of contractual relationship, etc.).

5. *Other Payments* – other payments made by a depositor (funds owner) on the basis of the concluded deposit contract (e.g. account management fee) should be entered in this column.

6. *Deposit Withdrawal* – the amount of withdrawn deposit should be entered in this column, under the time period, or the date when it is certain that the withdrawal will occur (e.g. upon the expiry of the time deposit contract).

7. *Interest Disbursement* – the amount of interest disbursed in the agreed periods should be entered in this column.

8. *Debits* – amounts debited against the consumer's deposit account should be entered in this column (e.g. debiting the account management fee against deposit).

9. *Other Disbursements* – other disbursements by a credit institution to a depositor on the basis of the concluded deposit contract should be recorded in this column (e.g. disbursement of deposit premium, as a result of fulfilment of particular conditions by the depositor and similar disbursements). If a credit institution disburses a premium (bonus) on deposit, the percentage of the premium, or a flat-rate amount of the premium, should be indicated in the repayment table.

10. *Deposit Balance* – the deposit balance at a particular period is entered in this column. It corresponds to the amount of deposit paid, increased by the accrued interest, or other accruals, and reduced by fees debited by the credit institution against this account. For the purpose of the EIR calculation, the total amount of deposit with accrued interest is considered to be disbursed upon the expiry of the period specified in the time deposit contract.

11. *Note (description)* – contains a short description of a cash flow at a particular period.

12. *Net Cash Flow* – is a sum of deposit payments (column 3) and other payments (column 5) (positive cash flow) reduced by the sum of deposit withdrawal (column 6), interest disbursement (column 7) and other disbursements (column 9) (negative cash flow) in a particular period. For the purpose of these Instructions, credits (column 4) and debits (column 8) are not included in the calculation of the net cash flow. All the amounts reported in columns 3 to 10 carry a positive sign. Net cash flow may be positive or negative - a positive sign implying net inflow of funds to a credit institution (payments) and a negative sign implying net outflow of funds from a credit institution (disbursements). For the purpose of the EIR calculation, it is considered that the available deposit will be withdrawn by the depositor upon the expiry of the period specified in the time deposit contract, together with the accrued interest and other disbursements (e.g. premium).

13. *Discounted Net Cash Flow* – the balances obtained by discounting net cash flows from column 12 at the appropriate EIR by applying the following formula

$NCF_k \left(1 + \frac{EIR}{100}\right)^{-\frac{d}{t}}$, should be entered in this column.

NCF_k stands for a net cash flow at a particular time, while EIR in the discount factor denotes the effective interest rate. The exponent $\frac{d}{t}$ represents the sum of the following three components

- (1) number of days from time 0 date to 31 December of the same year, as a proportion of the number of days in the time 0 year,
- (2) number of years between the year of the cash flow that is being discounted and time 0 year, excluding these two years,

(3) number of days between the date of the period in which the cash flow that is being discounted occurs and 31 December of the previous year, as a proportion of the number of days in the year of the cash flow that is being discounted.

The equation for computing $\frac{d}{t}$ may be expressed as follows:

$$\frac{d}{t} = \left[\frac{\text{yyyy}(0).12.31. - \text{dat}(0)}{t(0)} \right] + [\text{yyyy}(k) - \text{yyyy}(0) - 1] + \left[\frac{\text{dat}(k) - (\text{yyyy}(k) - 1).12.31.}{t(k)} \right]$$

$$t(0) = 1 + \text{yyyy}(0).12.31. - \text{yyyy}(0).01.01.$$

$$t(k) = 1 + \text{yyyy}(k).12.31. - \text{yyyy}(k).01.01.$$

dat(0) is time 0 date, while dat(k) is the date of the period in which the cash flow that is being discounted occurs.

Since *EIR* is the rate to be calculated, the methodology for its calculation is given below. The repayment table ends with the line item *Total*, which follows the last cash flow in the final period. In that line item, in the column *Discounted Net Cash Flow*, all discounted net cash flows from the individual time periods are added together. The EIR is an approximation, rounded to 2 decimal places, of the equation

$$\sum_k \left[NCF_k \left(1 + \frac{EIR}{100} \right)^{-\frac{d}{t}} \right] = 0.$$

The repayment table that is presented to a consumer should not contain auxiliary columns 12 and 13. The repayment table that is enclosed with the deposit documentation should contain these columns.

Example 3

A hypothetical example for completing the repayment table for a time deposit is given below.

A consumer considers a placing of time deposit of EUR 100 000.00 with a credit institution. A deposit would be paid in the entire amount on 1 May 2007 and it will mature in two years. When opening a savings account, a depositor is obliged to pay a one-off fee for concluding the savings contract in the kuna equivalent of EUR 5. The interest rate on a 2-year time deposit in the above stated amount is fixed, 5% per annum, in accordance with the credit institution's deposit policy, calculated and accrued annually, at the end of the period. Together with the interest accrual, the credit institution charges account management fee once a year. This fee amounts to a kuna equivalent of EUR 5 per annum. It is debited by the credit institution against the

depositor's account. If a depositor keeps the time deposit with the credit institution during the entire agreed period, a premium of 1% of the originally deposited amount is also paid. Accordingly, after two years, on 1 May 2009, EUR 112 249.75 is available to the depositor. In interest calculation, in accordance with the credit institution's general terms and conditions relating to deposits, the credit institution applies the British method (number of calendar days in a month and actual number of days in a year).

The repayment table in the table calculator is presented below:

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 Cerigradska 3 fax 01 765 4321
 10100 Zagreb

Date of table preparation: 3 April 2007

Currency EUR Nominal interest rate (%) 5.00 fixed Premium (%) 1.00 Effective interest rate (%) 5.95
 Deposit amount 100 000.00

Time period	Maturity date	Deposit payment	Credits	Other payments	Deposit withdrawal	Interest disbursement	Debits	Other disbursements	Deposit balance	Note (description)	Net cash flow	Discounted net cash flow
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
0	1 May 2007	100 000.00			5.00				100 000.00	Payment of deposit and a fee for concluding the savings contract	100 005.00	100 005.00
1	1 May 2008		5 000.00				5.00		104 995.00	Interest accrual and periodic account management fee debits	0.00	0.00
2	1 May 2009				104 990.00	5 249.75	5.00	2 010.00	0.00	Periodic account management fee debits and deposit withdrawal with the interest earned and premium	-112 249.75	-100 005.00
Total		100 000.00	5 000.00	5.00	104 990.00	5 249.75	10.00	2 010.00			-12 244.75	0.00

Note: The disclosed effective interest rate is valid as at the date of drawing up the repayment table.

Signature of a responsible person