Pursuant to Article 35, paragraph 1.1 of the Law No. 03/L-209 on Central Bank of the Republic of Kosovo (Official Gazette of the Republic of Kosovo, No.77 / 16 August 2010) and Article 85 of the Law No. 04/L-093 on Banks, Microfinance Institutions and Non-Bank Financial Institutions (Official Gazette of the Republic of Kosovo, No.11 / 11 May 2012), the Board of Central Bank of the Republic of Kosovo at the meeting held on November 29, 2012, approved the following:

REGULATION
ON EFFECTIVE INTEREST RATE
AND DISCLOSURE REQUIREMENTS

Article 1
Purpose and Scope

1. The purpose of this Regulation is to determine the unified methodology for calculation and disclosure of the effective interest rate on credits granted and deposits received, and the minimum disclosure requirements in order to provide full and accurate information on products and services for customers.

2. A unified methodology of calculation and disclosure of effective interest rates and disclosure of fees charged on products and services, aims to enable customers to make meaningful comparisons among financial institutions regarding the costs and benefits of their products and services and the actual cost of credits and return on deposits, thus increasing the transparency in the market.

3. CBK requires that charges for banking products and services should bear a direct relationship to the cost of providing those products and services, therefore banks may be asked by the CBK to justify the charges they impose. The CBK expects that Banks will, in pricing banking products and services, be sensitive to the desirability of making charges as fair and as affordable as possible.

4. This Regulation applies to all banks and branches of foreign banks licensed by the CBK to operate in the Republic of Kosovo, hereafter referred to as *banks*.

Article 2
Definitions

1. All terms used in this Regulation are as defined in Article 3 of the Law No. 04/L-093 on Banks, Microfinance Institutions and Non-Bank Financial Institutions (hereafter: *the Law on Banks*) and/or as further defined herein for the purpose of this Regulation:

a) *"Credit"* means any loan or direct or indirect legal commitment to disburse money in exchange for a right to repayment of the amount disbursed and outstanding and to the payment of interest or other charges on such amount;

b) *"Deposit"* means a sum of money paid by a natural person or legal entity to a bank, which is accepted by that bank on condition that it is to be repaid in full, with or without interest or premium either on demand or at an agreed time to that person or legal entity;

c) *"Interest rate"* means the interest rate expressed as a fixed or variable percentage applied by the bank on an annual basis to the amount of credit approved or to the amount of deposit received.

d) *"Effective Interest Rate - EIR"* means the total cost of credit or return on deposit, stated as an annual rate of credit's total value or deposit's total return, and calculated according to the methodology presented in Article 4 and Annex 1 of this Regulation, by means of which discounted cash inflows are balanced against discounted cash outflows, which refer to credits granted or deposits received. In discounting, the actual (calendar) number of days in a month and a 365 / 366-day year are used.

e) *"Total cost of credit to the customer"* means all costs, including interest, commissions, taxes and any other kind of fees which the customer is required to pay for the bank in connection with the credit agreement/contract; other compulsory expenses in respect of ancillary services relating to the credit agreement, in particular insurance premiums are also included if, in addition, the conclusion of a service contract is compulsory in order to obtain the credit or to obtain it on the terms and conditions marketed and if that service is paid by the bank and charged to the customer or if it is not possible for the client to choose the provider of that specific required service;

f) *"Advertisement"* means every form of advertising, whether in a publication, by television or radio, by display of notices, signs, labels, brochures, circulars, catalogues, price lists, Internet or other material, or in any other way, and references to the publishing of advertisements of interest rates shall be construed accordingly.

Article 3
Disclosure Requirements

1. Data on credits and deposits advertised by banks at their premises or in the media, which directly or indirectly show interest rate or some other information considered as a part of a credit cost or deposit return shall also contain the effective interest rate.

2. An advertisement shall not be misleading or inaccurate and shall not misrepresent a credit or deposit contract. It shall not refer to a product or service as "free" or "no cost" (or contain a similar term) if any maintenance or activity fee may be imposed on the account.

3. Effective interest rate shall not be less conspicuous than other data and banks, when disclosing it shall use the term *"Effective Interest Rate."* If the term is repeated more than once, the abbreviation EIR may be used thereafter. EIR shall be reported by rounding it to at least one (1) decimal place.

4. Prior to the selection of a product or service, and before the conclusion of a contract, banks shall provide to their customers a complete information about terms and conditions, deadlines, interest rate and effective interest rate, and other fees that the customer is required to pay to the third parties in order to obtain the credit. Banks shall also inform their customers prior to the conclusion of contracts, about customer's rights and responsibilities, including any possible future arising costs and penalties, as well as the accompanying risks in getting such a product or service. This information shall be available for the customer in writing and prior to signing the contract.

5. Before concluding the credit or deposit contract, the bank shall inform its customer about his/her rights to obtain the draft of the contract free of charge in order to enable him/her to review the contract before he/she signs it, and the bank shall provide the customer with a draft of a contract for the product or service he/she is interested in, on his/her request.

6. Banks shall not change the contents of any agreement/contract, for products or services, signed by their customers except those parts which are allowed to be changed with the legislation in force and by the agreement itself; however, that can be done only with the prior written notification of every individual customer that is subject to such a change. The notification shall be delivered at least one (1) month before the change becomes effective and it shall contain accurate and full information, expressed in an understandable way for the customer.

7. A bank shall provide its customer, at periodical intervals not exceeding a calendar month, a statement of account identifying each credit and debit posted to the account since the last statement and providing for the final account balance. The account statement can be provided by mail, electronically, or provided to the account holder in person or through any other form, depending on the customer's choice. Availability of account statements must be disclosed to the customer before the account is opened, including how statements will be delivered and with the possibility of the customer to choose the delivery method.

8. Banks shall inform their customers in advance, before the conclusion of contracts, in case they use debit and credit cards, on the terms for their application and the commission charged for the transactions carried out by cards, especially in their own ATM's / POS's or ATM's / POS's of other banks. The same information shall be offered at the ATM's of banks as well.

9. Banks shall compile and approve the calculation methodology/policy used on setting their credits and deposits prices which shall determine with their internal regulations, the following:

   a) Interest rate applied on credits and deposits and effective interest rate on credits and deposits calculated in accordance with the requirements of this regulation; and

   b) Commissions, fees and other expenses charged for their products and services at the time of conclusion of contract, and possible future arising costs in case certain conditions are fulfilled.

10. In case a bank is advised by the customer, through the address or telephone which must be previously determined by the bank and disclosed to the customer at the time of signing the contract, about a lost or a stolen credit or debit card, the customer cannot be held liable by the bank for the damage caused from transactions performed with that card after the bank has received the information from the customer.

Article 4
The Methodology for Calculation of Effective Interest Rates on Credits

1. The effective interest rate is calculated as specified in the mathematical formula presented in the Annex I of this Regulation.

2. For the purpose of calculating the effective interest rate, the total cost of credit to the consumer defined by paragraph e) of Article 2 of this Regulation, shall not include:

a)   Expenses that are unknown on the calculation date, but which may occur during the loan disbursement;

b)   Expenses payable from the customer in case of not meeting any of the commitments provided for in the credit agreement;

c)   Expenses that are different from the purchasing price, which the customer should pay for the purchasing of commodities and services, if the buying is performed in cash or by cash flow, on condition that banks will not be the last beneficiary of these payments;

d)   Expenses of the customer to pay other parties (for example: a public notary, tax authority, mortgage register) while preparing the credit agreement and any other expenditure for the registration and warranty. However, these expenses shall be clearly disclosed in writing to the customer before the conclusion of contract;

e)   Expenses for insurance premiums compulsory to obtain the credit or obtain it with the particular terms and condition offered. In cases where they are paid by the customer to the insurance company, that he has the option to choose himself. In these cases, these expenses shall be disclosed by the bank in addition to the effective interest rate, explaining that the insurance premium is not included in the calculation of the effective interest rate.

f)   Expenses for insurances which are not compulsory to obtain the credit or obtain it on the terms and conditions offered;

g)   Each expense that customers have to pay to the bank only when:

   i. The credit granted is not totally or partially used;
   ii. The customer applies for a change in the payments deadline and such an application is accepted by the bank.

3. Expenses for maintaining an account's records of both payment transactions and drawdowns, the costs of using a means of payment transaction and drawdowns, and other costs relating to credit payment transactions, shall be included in the total cost of credit to the customer, unless the opening of the account for these services is optional for the customer (which means that customers are not obliged to open an account with the bank for these services) and the costs of maintaining the account have been clearly and separately shown in the credit agreement or in any other agreement concluded with the consumer

4. The effective interest rate is calculated based on the assumption that the credit agreement/contract is valid over the agreed period and parties meet their liabilities in accordance with specifications and the timeline agreed therein.

5. When the credit agreements contain provisions providing for changes to the interest rates, or other expenses included in the effective interest rate, but immeasurable at the time this rate is calculated, the effective interest rate is calculated upon the assumption that the interest rate and other expenses will remain unchanged (fixed) from their initial level and will be applied until the completion of the obligations of the credit agreement.

6. The bank shall set out in the credit contract the way it will notify the client each time the basic elements for the calculation of effective interest rates are changed and notification has to be disclosed before any such a change.

7. When concluding a credit contract, a bank shall present the repayment schedule (amortization plan), together with a clearly stated effective interest rate, to the customer. In addition banks shall maintain a copy of a repayment schedule, signed by the customer, in the respective credit file.

8. Where necessary, the additional assumptions set out in Annex I of this Regulation, if applicable, may be used in calculating the effective interest rate, as well as the examples provided with Annex II of this Regulation for further clarification.

9. Banks shall submit to the Central Bank of the Republic of Kosovo, on a quarterly basis, and within fifteen (15) days after the end of each quarter, reports on the effective interest rates on all products and services they offer to their customers.

Article 5
Elements of Credit Agreement (Contract)

1. Each credit agreement (contract) shall be prepared in a written form, endorsed by the contracting parties, and shall disclose at least the following elements:

   a) Type of credit (installment, margins, etc.);
   b) Purpose of credit usage;
   c) Identities and geographical addresses of the contracting parties;
   d) The credit specifications concerning the amount, monetary currency, issuing date, maturity date, interest rate and its type (fixed or variable), directing index, EURIBOR, LIBOR, etc.) margin, effective interest rate, the frequency of interest rate change or its comprising parts, periodical value of the credit repayment (installment) and the settlement date or period;
   e) The initial contribution of the borrower (if applicable) or different commissions when the loan is received and settled or during repayments;
   f) In the case of a credit in the form of a deferred payment for a specific good or service or in the case of linked credit agreements, the respective good or service and its cash price;
   g) The total amount payable by the customer, calculated at the time the credit agreement is concluded;
   h) Where applicable, the charges for maintaining one or several accounts, recording both payment transactions and drawdowns for the credit, unless opening of an account is optional, together with charges for using a means of payment for both payment

transactions and drawdowns, and any other charges deriving from the credit agreement and the conditions under which those charges may be assessed;

i) The interest rate applicable in the case of late payments, as applicable at the time of the conclusion of the credit agreement and the arrangements for its adjustment and, where applicable, any charges or penalties payable for default;

j) A warning regarding the consequences of missing payments;

k) Where applicable, a statement that notarial, registration or any other required fees for third parties, must be paid to obtain the credit;

l) Where applicable, a statement that insurance policies and other auxiliary services, must be provided in order to obtain the credit or obtain it on conditions marketed;

m) The type of collateral (if existent);

n) The parties liabilities and penalties, and conditions when they are applied;

o) The way the contract specifications might be changed and the way the contract is terminated;

p) The number of endorsed original copies of the contract and the way they are possessed by the parties.

2. At the initial credit granting process or at the moment of credit restructuring, banks shall provide the customer with:

a) The credit amortization plan, at the moment of concluding the credit agreement and in cases of restructuring, which shall indicate the payments owing and the periods and conditions relating to the payment of such amounts, the table shall contain a breakdown of each repayment showing principal amortization, the interest calculated on the basis of the interest rate and, where applicable, any additional costs;

b) The schedule of all pre-defined and known payments, fixed or variable, which the customer shall pay during the process of receiving the credit and during the period of its duration. Bank shall disclose here both the expenses that are included in the calculation of the effective interest rate and those that are not included;

c) Possible future arising costs and penalties and conditions when they apply;

d) In cases of variable interest rates a written warning of the risk from the increase of interest rate during the credit duration as the result of increase of orientating index.

e) In cases of consumer credit, including credit cards, overdrafts or other similar forms of credit, the conditions for lending, using and repaying of such type of credit and all the corresponding penalties shall be set out in detail in the contract.

f) Prepayment penalty. If a penalty may be imposed for paying all or part of the principal before the date on which the principal is due, this prepayment penalty must be disclosed to the borrower, including how the amount of the penalty will be computed.

3. In case of credit agreements in the form of credit lines, overdraft facilities and credit cards, banks shall in addition to applicable elements of paragraphs 1. and 2. of Article 5, specify the following information in writing:

a) The credit initial limit, if it is known when concluding the contract;

b) The type and the amount of each payment different from the interest rate;

c) Minimal payment required during each payment period and the method of its calculation;

d) The date of interest calculation and information about the remission payment period;

e) The data of the commissions and fines and the conditions on which they apply;

f) The requested amount of collateral which serves as a basis for getting the credit;

Article 6
Elements of Deposit Agreement (Contract)

1. For each account opened by a customer with a bank, a contract shall be endorsed by the participating parties in the transaction. The contract is a special act, different from the application document for opening of the account.

2. Each current or savings account contract, besides contractual parties' data and the account number, shall disclose at least the following:

   a) The interest rate and the method of its calculation;
   b) The effective interest rate and for savings accounts the total amount to be received by the customer;
   c) Frequency of interest payments;
   d) The withholding tax on interest and its calculation method;
   e) Commissions for accounts maintenance; and
   f) Other possible applicable commissions and penalties.

The above elements provided for under a), b) and c) are included in the contract in cases when banks apply interest on current and/or saving accounts.

3. Time deposit contracts, along with the customer's individual data, shall contain at least the following elements:

   a) The amount of time deposit;
   b) Interest rate and the frequency of its payment;
   c) Effective interest rate and the total amount to be received by the customer at the deposit term period;
   d) The amount of withholding tax on interest revenues;
   e) The date of time deposit maturity;
   f) Conditions selected by the customer for time deposits account renewal, automatically or not;
   g) Conditions for contract termination; and
   h) Penalties applied in case of termination of the contract before the expiry date, how are they calculated and determined.
   i) If the account will not renew automatically, a statement of whether interest will be paid after maturity if the customer does not renew the account, must be stated.
   j) If the renewal of the term deposit account is not automatic and there is no interest calculated after its maturity, banks shall determine and disclose the period and manner of notifying their client during which the client can decide for the renewal of its term deposit account.

4. Banks shall set out by the accounts and deposits contract, the manner how the consumer will be informed about the possible modifications of terms and conditions of the contract, prior to their application.

5. If one of the elements of contracts is changed and which affects any of its customers, banks shall inform each of the customers in writing, at least one (1) month before the change becomes effective.

Article 7
Other Disclosures

1. All banks shall prepare a price list of all charges for all products and services they render, posting them in the bank in a conspicuous manner, and that list shall be made available to all inquiring customers.

2. For this purpose, banks shall ensure that each of its branch offices dealing with retail customers shall have printed price lists which contain the required information ready to be delivered to an inquiring customer. Such information should be conspicuous and published in a bank's web page, as well.

3. Banks shall ensure that the price lists are regularly updated and shall not impose charges on customers in excess of the disclosed structure or compute such charges in a manner inconsistent with the basis disclosed to customers.

Article 8
Enforcement, Remedial Measures and Civil Penalties

Banks found to be in violation of this Regulation shall be subject to the remedial measures and penalties provided for in Articles 58, 59 and 82 of the Law on Banks.

Article 9
Transitional Provisions

1. Banks shall meet the requirements of the above provisions within one hundred and eighty (180) days after the effective date of this Regulation.

2. The provisions of this Regulation do not apply for inter-bank credit and deposit agreements, concluded between financial institutions and for credit and deposit agreements concluded before its entry into force.

Article 10
Abrogation

Upon the entry into force of this Regulation, it shall abrogate Rule XXVI of CBK on Interest Rates, Fees Disclosure and Advertisement adopted on March 20, 2008, and any other provisions that may be in conflict with this Regulation.

Article 11
Entry into Force

This Regulation shall enter into force on December 03, 2012.

The Chairman of the Board of Central Bank of the Republic of Kosovo

_____
Sejdi Rexhepi

Annex No. I

The Methodology for Calculation of the Effective Interest Rate for Credits

The basic equation for calculating the effective interest rate (EIR) equates, on yearly basis, **on one hand the total present value of drawdowns, by subtracting every withhold expenditure (for example administrative and/or management expenditures etc.) placed under the customer's disposal according to the loan agreement and on the other hand the total present value of repayments and payments of charges:**

$$\sum_{k=1}^{m} C_k (1+X)^{-t_k} = \sum_{l=1}^{m'} D_l (1+X)^{-S_l}$$

where:
- X   is the EIR which may be calculated (basing on algebra or on a computer program) when the other terms in the equation are known by the contract or differently. the EIR

- m   is the total number of installment credit if the credit is disbursed by installments (cash flow), paid from the lender.

- k   is the proceeding number of installments credit, if the credit is disbursed by installments (cash flow) paid from the lender,(drawn), therefore $1 < k < m$ and/or $1 = k = m$.

- C_k is the loans total present value (cash flow) on the client's disposal during k period.

- t_k is the interval stated in years and fractions of one year between the first cash flow put under the client's disposal (if the loan is flowed by installments) and the date of each ensuing installment credit put under the client's disposal, that is $t1 = 0$.

- m' is the total number of installments(cash flows) paid by the client for the loan settlement and/or expenditures payment.

- l   is the ensuing number of the installments paid by the client for the loan settlement (repayment or expenditure payment).

- D_l is the value of the installment (cash flow) or payment expenses paid by the client during period l.

- S_l the interval expressed in years and fractions of one year between the date of the first cash flow put at the client's disposal (in case the loan is flowed by installments) or the date of credit flow, if the credit flow is complete and the date of each installment for settlement and/or the ensuing expenses paid by the client.

A.   Remarks:

1. The amounts paid by both parties at different times shall not necessarily be equal and shall not necessarily be paid at equal intervals.

2. The original date must be the date when the bank pays the first installment of credit flow if the loan is flowed by unsettlements or the date when the loan is disbursed if the loan under the client's disposal is disbursed completely.

3. Intervals between dates used in the calculations shall be expressed in years or in fractions of a year. A year is presumed to have 365 days (or 366 days for leap years), 52 weeks or 12 equal months. An equal month is presumed to have 30.41666 days (i.e. 365/12) regardless of whether or not it is a leap year.

4. The result of the calculation shall be expressed with an accuracy of at least one decimal place. If the figure at the following decimal place is greater than or equal to 5, the figure at that particular decimal place shall be increased by one.

5. The equation can be rewritten using a single sum and the concept of flows (A_k), which will be positive or negative, in other words either paid or received during periods 1 to k, expressed in years, i.e.:

$$S = \sum_{k=1}^{n} A_k (1 + X)^{-t_k},$$

S - is the present balance of flows. If the aim is to maintain the equivalence of flows, the value will be zero.

Banks shall give assurance that the applicable solution methods will produce an outcome equal to the results of examples presented in the Appendix II below.

B.   Additional assumptions for the calculation of the effective interest rate:

1. If a credit agreement gives the consumer freedom of drawdown, the total amount of credit shall be deemed to be drawn down immediately and in full;

2. If a credit agreement provides different ways of drawdown with different charges or borrowing rates, the total amount of credit shall be deemed to be drawn down at the highest charge and borrowing rate applied to the most common drawdown mechanism for this type of credit agreement;

 3. If a credit agreement gives the consumer freedom of drawdown in general but imposes, amongst the different ways of drawdown, a limitation with regard to the amount and period of time, the amount of credit shall be deemed to be drawn down on the earliest date provided for in the agreement and in accordance with those drawdown limits;

4. If there is no fixed timetable for repayment, it shall be assumed:

a. that the credit is provided for a period of one year; and

b. that the credit will be repaid in 12 equal installments and at monthly intervals;

5. If there is a fixed timetable for repayment but the amount of such repayments is flexible, the amount of each repayment shall be deemed to be the lowest for which the agreement provides;

6. Unless otherwise specified, where the credit agreement provides for more than one repayment date, the credit is to be made available and the repayments made on the earliest date provided for in the agreement;

7. In the case of an overdraft facility the total amount of credit shall be deemed to be drawn down in full and for the whole duration of the credit agreement. If the duration of the credit agreement is not known the effective interest rate shall be calculated on the assumption that the duration of the credit is three months;

8. If different interest rates and charges are offered for a limited period or amount, the interest rate and the charges shall be deemed to be the highest rate for the whole duration of the credit agreement;

9. For consumer credit agreements for which a fixed borrowing rate is agreed in relation to the initial period, at the end of which a new borrowing rate is determined and subsequently periodically adjusted according to an agreed indicator, the calculation of the effective interest rate shall be based on the assumption that, at the end of the fixed borrowing rate period, the borrowing rate is the same as at the time of calculating the effective interest rate, based on the value of the agreed indicator at that time.

Annex No. II

Examples of Calculation of the Effective Interest Rate on Credits

The aim of the examples of the calculation of the EIR is to illustrate the application of the calculation of the EIR as regards the formula, and the assumptions used for the calculation of this rate. Using the examples, interested parties can also ensure that its methods of resolution give an identical result.

The following examples are taken from the Study on the Calculation of the Annual Percentage Rate of Charge for Consumer Credit Agreements, the Final Report issued by the European Commission, Directorate – General Health and Consumer Protection in 2009 which is available at the website: http://ec.europa.eu/consumers/rights/docs/study_APR_en.pdf , with some additional changes by the CBK, for their adoption with the requirements of this Regulation.

The Table 1 below shows some of the common features used and the following examples of different credit products.

Table 1.

Feature	Installment credits	Revolving credits
Amount	€6000 (exceptions 11, 14, 15)	€1000
Duration	2 years (exceptions 1, 2, 15, 17)	Endogenously determined by a minimum repayment of the 20% of the balance outstanding with a minimum of €20 (exceptions 18, 19 and 20)
Frequency of payments	Monthly (exceptions 1, 2, 14)	Monthly
Interest rate	9% yearly (exceptions 14, 15)	12% effective
Other charges and fees (when exist)	Administrative costs €60	Administrative costs of €25 if single sum payment or €2.5 per month
Insurance costs (when exist)	5% of the initial amount of credit	1.5% of the balance outstanding

The Table 2 below shows the following set of examples of this annex, including a brief description of them and their most distinguishing features.

Table 2

Number	Description	Feature
	Installment credits	
1	Installment credit with a single repayment	Duration and number of repayments
2	Installment credit with four annual installments	Duration and frequency of repayments
3	Installment credit with monthly installments	Monthly Installments

Number	Description	Feature
4	Installment credit with the first repayment in a specific number of days	First repayment period with different length
5	Installment credit with setup costs	Setup charges
6	Installment credit with regular charges	Regular charges
7	Installment credit with setup costs and regular insurance premiums	Regular insurance premiums
8	Installment credit with setup costs and single sum insurance premium which is financed	Single-sum insurance premium financed
9	Balloon\ type credit with setup costs and regular insurance premiums	Balloon payment
10	Installment credit with an advance payment and setup costs	Advance payment
11	Leasing agreement	Advance payment plus final payment
12	Installment credit with set-up costs and decreasing installments	Decreasing installments
13	Installment credit with set-up costs and increasing installments	Increasing installments
14	Installment credit with flexibility in the amount of the repayments	Flexibility in the amount of the repayments
15	Installment credit with a few number of repayments and high charges	Few number of repayments and high charges
16	Installment credit with increasing borrowing rate	Increasing borrowing rate
17	Credit agreement without a fixed timetable for repayment	No fixed timetable for repayment
Number	Description	Feature
Revolving credits		
18	Revolving credit with a pre-set duration and regular payment of the total cost of the credit (interest and charges)	Regular payment of the total cost of the credit
19	Overdraft facility with an unlimited period of validity and regular payment of the total cost of the credit (interest and charges)	Overdraft facility with an unlimited period of validity and regular payment of the total cost of the credit
20	Open-end credit with set-up costs and regular repayment of a fixed amount	Open-end credit with set-up costs and regular repayment of a fixed amount
21	Open-end credit with set-up costs and regular payment of the total cost of the credit (interest) plus a minimum percentage of the balance outstanding (capital)	Open-end credit with set-up costs and regular payment of the total cost of the credit plus a minimum percentage of the balance outstanding (capital)
22	Open-end credit with set-up costs and regular payment of the total cost of the credit (interest and insurance premiums) plus a minimum percentage of the balance outstanding (capital)	Regular insurance premiums

23	Open-end credit with set-up costs and regular repayment of a minimum percentage of the balance outstanding (capital and interest)	Open-end credit with set-up costs and regular repayment of a minimum percentage of the balance outstanding (capital and interest)
24	Credit card with annual costs, increasing borrowing rate and regular repayment of a minimum percentage of the balance outstanding (capital and interest)	Annual costs and increasing borrowing rate

EXAMPLES:

The following examples illustrate the calculation of the EIR on different products offered by banks and cover a wide range of elements and characteristics they are distinguished with. The examples should be interpreted as notional examples in the sense that the amounts, charges or interest rates assumed are only illustrative of the market, and market products might combine the elements of different examples:

EXAMPLE 1

Credit agreement for a total amount of credit of €6000 repayable in a single installment of €6270 in six months.

The equation becomes:

$$6000 = 6270 \frac{1}{(1+X)^{0.5}}$$

giving X=9.202500%, i.e. an EIR of 9.2%.

EXAMPLE 2

Credit agreement for a total amount of credit of €6000 repayable in 4 equal annual installments of €1852.01.

The equation becomes:

$$6000 = 1852.01 \frac{1}{(1+X)^1} + 1825.01 \frac{1}{(1+X)^2} + 1825.01 \frac{1}{(1+X)^3} + 1825.01 \frac{1}{(1+X)^4}$$

or:

$$6000 = 1852.01 \frac{1 - \frac{1}{(1+X)^4}}{X}$$

giving X=8.999951%, i.e. an EIR of 9.0%.

EXAMPLE 3

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments of €274.11.

The equation becomes:

$$6000 = 274.11\frac{1}{(1+X)^{1/12}} + 274.11\frac{1}{(1+X)^{2/12}} + \cdots + 274.11\frac{1}{(1+X)^{24/12}}$$

or:

$$6000 = 274.11\frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 9.381299%, i.e. an EIR of 9.4%.

EXAMPLE 4

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments, the first of which must be paid in a specific number of days from the conclusion of the agreement.

Let us first consider the case that the number of days to the first installment is 20 in a year with 365 days. Using a borrowing rate (nominal rate) of 9%, the monthly installment is €273.41, and the equation becomes:

$$6000 = 273.41\frac{1}{(1+X)^{20/365}} + 273.41\frac{1}{(1+X)^{20/365+1/12}} + \cdots + 273.41\frac{1}{(1+X)^{20/365+23/12}} =$$
$$= (1+X)^{1/12-20/365}\left[273.41\frac{1}{(1+X)^{1/12}} + 273.41\frac{1}{(1+X)^{2/12}} + \cdots\right.$$
$$\left. + 273.41\frac{1}{(1+X)^{24/12}}\right]$$

or:

$$6000 = 273.41 \; x \; (1+X)^{1/12-20/365}\frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 9.381531%, i.e. an EIR of 9.4%.

If the period of 20 days belongs to a leap year, using the same borrowing rate of 9% the monthly installment remains the same as before to a precision of two decimals. The new equation becomes:

$$6000 = 273.41\frac{1}{(1+X)^{20/366}} + 273.41\frac{1}{(1+X)^{20/366+1/12}} + \cdots + 273.41\frac{1}{(1+X)^{20/366+23/12}} =$$
$$= (1+X)^{1/12-20/366}\left[273.41\frac{1}{(1+X)^{1/12}} + 273.41\frac{1}{(1+X)^{2/12}} + \cdots\right.$$
$$\left. + 273.41\frac{1}{(1+X)^{24/12}}\right]$$

or:

$$6000 = 273.41 \; x \; (1+X)^{1/12-20/366}\frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 9.383024%, i.e. an EIR of 9.4%.

Now consider the case that the number of days to the first repayment is one month plus a period of 20 days in a year with 365 days. For the borrowing rate of 9%, the monthly installment is significantly higher, reflecting the longer duration of the credit, and amounts to €275.45. The equation becomes:

$$6000 = 275.45 \frac{1}{(1+X)^{20/365}} + 275.45 \frac{1}{(1+X)^{20/365+1/12}} + \cdots + 275.45 \frac{1}{(1+X)^{20/365+24/12}} =$$

$$= (1+X)^{-20/365} \left[275.45 \frac{1}{(1+X)^{1/12}} + 275.45 \frac{1}{(1+X)^{2/12}} + \cdots + 275.45 \frac{1}{(1+X)^{24/12}} \right]$$

or:

$$6000 = 275.45 \; x \; (1+X)^{-20/365} \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 9.377528%, i.e. an EIR of 9.4%.

Finally, if the number of days to the first repayment is one month plus a period of 20 days in leap year, the monthly installments remains the same as before to a precision of two decimals and the equation becomes:

$$6000 = 275.45 \frac{1}{(1+X)^{20/366+1/12}} + 275.45 \frac{1}{(1+X)^{20/366+2/12}} + \cdots + 275.45 \frac{1}{(1+X)^{20/366+24/12}} =$$

$$= (1+X)^{-20/366} \left[275.45 \frac{1}{(1+X)^{1/12}} + 275.45 \frac{1}{(1+X)^{2/12}} + \cdots + 275.45 \frac{1}{(1+X)^{24/12}} \right]$$

or:

$$6000 = 275.45 \; x \; (1+X)^{-20/366} \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 9.378904%, i.e. an EIR of 9.4%.

EXAMPLE 5

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments of €274.11. Administrative charges of €60 payable on conclusion of the agreement.

The equation becomes:

$$6000 = 60 + 274.11 \frac{1}{(1+X)^{1/12}} + 274.11 \frac{1}{(1+X)^{2/12}} + \cdots + 274.11 \frac{1}{(1+X)^{24/12}}$$

or:

$$6000 = 60 + 274.11 \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 10.474957%, i.e. an EIR of 10.5%.

Compared to example 3, the EIR increases as a result of the additional costs.

EXAMPLE 6

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments of €274.11. Administrative charges of €60 spread over the repayments.

The monthly payment becomes:

$$A = 274.11 + \frac{60}{24} = €\,276.61$$

and the equation becomes:

$$6000 = 276.61 \frac{1}{(1+X)^{1/12}} + 276.61 \frac{1}{(1+X)^{2/12}} + \cdots + 276.61 \frac{1}{(1+X)^{24/12}}$$

or:

$$6000 = 276.61 \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 10.368635%, i.e. an EIR of 10.4%.

Compared to example 5, the EIR decreases as a result of the distribution of the payment of the costs over time.

EXAMPLE 7

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments of €274.11. Administrative charges of €60 payable on conclusion of the agreement plus insurance costs of 5% of the credit limit spread over the repayments.

The costs associated with insurance premiums must be included in the total cost of the credit if insurance is compulsory in order to obtain the credit or to obtain it on the terms and conditions marketed. It is assumed this is the case.

The monthly payment becomes:

$$A = 274.11 + \frac{5\% \; x \; 6000}{24} = €\,286.61$$

and the equation becomes:

$$6000 = 60 + 286.61 \frac{1}{(1+X)^{1/12}} + 286.61 \frac{1}{(1+X)^{2/12}} + \cdots + 286.61 \frac{1}{(1+X)^{24/12}}$$

or:

$$6000 = 60 + 286.61 \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 15.506941%, i.e. an EIR of 15.5%.

EXAMPLE 8

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments. Administrative charges of €60 payable on conclusion of the agreement plus single-sum insurance costs of 5% of the credit limit which are financed.

The costs associated with insurance premiums must be included in the total cost of the credit if insurance is compulsory in order to obtain the credit or to obtain it on the terms and conditions marketed. It is assumed this is the case.

The amount financed is given by the sum of the amount of the credit and the insurance costs:

$$6000 + 5\% \ x \ 6000 = \ €6300$$

and the monthly installment which provides full repayment of this amount is €287.81.

The equation becomes:

$$6000 = 60 + 287.81 \frac{1}{(1+X)^{1/12}} + 287.81 \frac{1}{(1+X)^{2/12}} + \cdots + 287.81 \frac{1}{(1+X)^{24/12}}$$

or:

$$6000 = 60 + 287.81 \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 15.993938%, i.e. an EIR of 16.0%.

Compared to example 7, both the installments and the EIR are higher reflecting the financing costs of insurance.

EXAMPLE 9

Balloon-type credit agreement for a total amount of credit of €6000 repayable in 23 equal monthly installments plus a final payment in month 24th representing 25% of the initial amount of the credit. Administrative charges of €60 payable on conclusion of the agreement plus insurance costs of 5% of the credit limit spread over the repayments.

The costs associated with insurance premiums must be included in the total cost of the credit if insurance is compulsory in order to obtain the credit or to obtain it on the terms and conditions marketed. It is assumed this is the case.
.
Using a borrowing rate (nominal rate) of 9%, the monthly installment which provides full repayment of the credit is €225.44. The monthly payment for the first 23 months then becomes:

$$A_{1-23} = 225.44 + \frac{5\% \times 6000}{24} = €\ 237.94$$

and the payment in month 24 is:

$$A_{24} = 25\% \times 6000 + \frac{5\% \times 6000}{24} = €\ 1512.50$$

The equation becomes:

$$6000 = 60 + 237.94 \frac{1}{(1+X)^{1/12}} + 237.94 \frac{1}{(1+X)^{2/12}} + \cdots + 237.94 \frac{1}{(1+X)^{23/12}} + 1512.50 \frac{1}{(1+X)^{24/12}}$$

or:

$$6000 = 60 + 237.94 \frac{1 - \dfrac{1}{(1+X)^{23/12}}}{(1+X)^{1/12} - 1} + 1512.50 \frac{1}{(1+X)^{24/12}}$$

giving X= 14.610574%, i.e. an EIR of 14.6%.

This example illustrates the case of credits which offer the postponement of the repayment of a large part of the credit to the end of the agreement. The higher credit risk due to the huge last payment can justify the requirement of insurance.

EXAMPLE 10

Credit agreement for a total amount of credit of €6000 repayable in 24 equal monthly installments plus an advance payment representing 25% of the initial amount of the credit. Administrative charges of €60 payable on conclusion of the agreement.

The advance payment is never a part of the financing operation. The amount of the credit is then:

$$6000 - 25\% \ x \ 6000 = \ €\ 4500$$

Using a borrowing rate (nominal rate) of 9%, the monthly installment which provides full repayment of the credit is €205.58.

The equation becomes:

$$4500 = 60 + 205.58 \frac{1}{(1+X)^{1/12}} + 205.58 \frac{1}{(1+X)^{2/12}} + \cdots + 205.58 \frac{1}{(1+X)^{24/12}}$$

or:

$$4500 = 60 + 205.58 \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1}$$

giving X= 10.843883%, i.e. an EIR of 10.8%.

This example illustrates hire-purchases agreements without a special final payment and also practices used by certain specialist "vendor-credit" establishments.

EXAMPLE 11

Credit agreement of the hire- purchase type for goods with a price of €20000 over a period of 2 years. The agreement stipulates an advance payment of 50% of the price, 23 monthly installments plus a final payment of 10% of the price. Administrative charges of €60 payable on conclusion of the agreement.

The advance payment is never a part of the financing operation. The amount of the credit is then:

$$20000 - 50\% \ x \ 20000 = \ €\ 10000$$

The payment in month 24 is:

$$A_{24} = 10\% \ x \ 20000 = €\ 2000$$

Using a borrowing rate (nominal rate) of 9%, the monthly installment which provides full repayment of the credit is €395.58.

The equation becomes:

$$10000 = 60 + 395.58 \frac{1}{(1+X)^{1/12}} + 395.58 \frac{1}{(1+X)^{2/12}} + \cdots + 395.58 + 2000 \frac{1}{(1+X)^{24/12}}$$

or:

$$10000 = 60 + 395.94 \frac{1 - \frac{1}{(1+X)^{23/12}}}{(1+X)^{1/12} - 1} + 2000 \frac{1}{(1+X)^{24/12}}$$

giving X= 9.957314%, i.e. an EIR of 10.0%.

This example combines the two special payments from the two previous examples

EXAMPLE 12

Credit agreement for a total amount of credit of €6000 with two payment periods of 11 and 3 months respectively. The second- period installment corresponds to 60% of the first-period installment. Administrative charges of €60 payable on conclusion of the agreement.

Using the borrowing rate (nominal rate) of 9%, the respective monthly installments are € 345.99 and € 207.59.

The equation becomes:

$$6000 = \ 60 + 345.99 \frac{1}{(1+X)^{1/12}} + \cdots + 345.99 \frac{1}{(1+X)^{11/12}} + 207.59 \frac{1}{(1+X)^{12/12}} + \cdots$$
$$+ 207.59 \frac{1}{(1+X)^{24/12}} = 60 + 345.99 \frac{1}{(1+X)^{1/12}} + \cdots + 345.99 \frac{1}{(1+X)^{11/12}} +$$
$$+ \frac{1}{(1+X)^{11/12}} \left[207.59 \frac{1}{(1+X)^{1/12}} + \cdots + 207.59 \frac{1}{(1+X)^{13/12}} \right]$$

or:

$$6000 = 60 + 345.99 \frac{1 - \frac{1}{(1+X)^{11/12}}}{(1+X)^{1/12} - 1} + 207.59 \frac{1}{(1+X)^{11/12}} x \frac{1 - \frac{1}{(1+X)^{13/12}}}{(1+X)^{1/12} - 1}$$

giving X= 10.631509 %, i.e. an EIR of 10.6%.

EXAMPLE 13

Credit agreement for a total amount of credit of €6000 with two payment periods of 11 and 13 months respectively. The first- period installment corresponds to 60% of the second-period installment. Administrative charges of €60 payable on conclusion of the agreement.

Using the borrowing rate (nominal rate) of 9%, the respective monthly installments are € 203.61 and € 339.35. The second installment is 1/0.6- 1=66.666667% higher than the first installment.

The equation becomes:

$$6000 = 60 + 203.61 \frac{1}{(1+X)^{1/12}} + \cdots + 203.61 \frac{1}{(1+X)^{11/12}} + 339.35 \frac{1}{(1+X)^{12/12}} + \cdots$$
$$+ 339.35 \frac{1}{(1+X)^{24/12}} = 60 + 203.61 \frac{1}{(1+X)^{1/12}} + \cdots + 203.61 \frac{1}{(1+X)^{11/12}}$$
$$+ \frac{1}{(1+X)^{11/12}} \left[339.35 \frac{1}{(1+X)^{1/12}} + \cdots + 339.35 \frac{1}{(1+X)^{13/12}} \right]$$

or:

$$6000 = 60 + 203.61 \frac{1 - \frac{1}{(1+X)^{11/12}}}{(1+X)^{1/12} - 1} + 339.35 \frac{1}{(1+X)^{11/12}} x \frac{1 - \frac{1}{(1+X)^{13/12}}}{(1+X)^{1/12} - 1}$$

giving X= 10.354709 %, i.e. an EIR of 10.4%.

EXAMPLE 14

Credit agreement for a total amount of credit of €1000 repayable in two installments of either €700 after one year and €500 after two years, or €500 after one year and €700 after two years.

The borrowing rates (nominal rate) are 13.90% and 12.32% for the first and the second case respectively.

In the first case the equation becomes:

$$1000 = 700 \frac{1}{(1+X)^1} + 500 \frac{1}{(1+X)^2}$$

giving X = 13.898667%.

In the second case the equation becomes:

$$1000 = 500 \frac{1}{(1+X)^1} + 700 \frac{1}{(1+X)^2}$$

giving X = 12.321246%.

According to assumption (e), in those cases where there is a fixed timetable for repayment but the amount of such repayments is flexible, the amount of each repayment shall be deemed to be the lowest for which the agreement provides. Hence, we should choose 500 as the first repayment, meaning that the regulatory EIR is that of the second case, i.e. an EIR of 12.3%.

This example shows that the annual percentage rate of charge depends on the payment scheme and that stating the total cost of the credit in the prior information or in the credit agreement is of no benefit to the consumer. Despite the total cost of credit being € 200 in both cases, the rates are different.

EXAMPLE 15

Credit agreement for a total amount of credit of €1000 repayable in four equal monthly installments calculated by applying a borrowing rate (nominal rate) of 18%, plus administrative charges of €60 spread over the payments.

The monthly installment which provides full repayment of the credit is € 259.44, and the monthly payment becomes:

$$A = 259.44 + \frac{60}{4} = € 274.44$$

The equation becomes:

$$1000 = 274\frac{1}{(1+X)^{1/12}} + 274.44\frac{1}{(1+X)^{2/12}} + 274.44\frac{1}{(1+X)^{3/12}} + 274.44\frac{1}{(1+X)^{4/12}}$$

or:

$$1000 = 274.44\frac{1 - \dfrac{1}{(1+X)^{4/12}}}{(1+X)^{1/12} - 1}$$

giving X= 57.138738%, i.e. an EIR of 57.1%.

EXAMPLE 16

Credit agreement for a total amount of credit of €6000 repayable in 24 monthly installments. The borrowing rate (nominal rate) increases from 5% to 9% after the first year and remains in this new level until the end of the agreement. Administrative charges of €60 payable on conclusion of the agreement.

According to assumption (i), if different interest rates and charges are offered for a limited period or amount, the interest rate and the charges shall be deemed to be the highest rate for the whole duration of the credit agreement. Therefore, the EIR of this agreement should be calculated assuming a borrowing rate of 9% for the 4 years. The calculations coincide with example 5, which provided an EIR of 10.5%.

EXAMPLE 17

Credit agreement for a total amount of credit of €6000 and administrative charges of €60.

The credit agreement does not stipulate a fixed timetable for repayments and thus, assumption (d) should be applied. Accordingly, it is assumed: (i) that the credit is provided for a period of one year, and (ii) that the credit will be repaid in 12 equal installments and at monthly intervals.

The monthly payment which provides full repayment of the credit and interest charges in 12 months is €524.71.

If the agreement stipulates that administrative charges are payable on conclusion of the agreement, the equation becomes:

$$6000 = 60 + 524.71 \frac{1}{(1+X)^{1/12}} + 524.71 \frac{1}{(1+X)^{2/12}} + \cdots + 524.71 \frac{1}{(1+X)^{12/12}}$$

or:

$$6000 = 60 + 524.71 \frac{1 - \dfrac{1}{(1+X)^{12/12}}}{(1+X)^{1/12} - 1}$$

giving X= 11.461367%, i.e. an EIR of 11.5%.

If the agreement does not stipulate a fixed timetable for the payment of the administrative charges, the charges are included in the equal monthly installment. The monthly payment then
becomes:

$$A = 524.71 + \frac{60}{12} = €\, 529.71$$

and the equation becomes:

$$6000 = 529.71 \frac{1}{(1+X)^{1/12}} + 529.71 \frac{1}{(1+X)^{2/12}} + \cdots + 529.71 \frac{1}{(1+X)^{12/12}}$$

or:

$$6000 = 529.71 \frac{1 - \dfrac{1}{(1+X)^{12/12}}}{(1+X)^{1/12} - 1}$$

giving X= 11.342929 %, i.e. an EIR of 11.3%.

EXAMPLE 18

Credit agreement for a maximum amount of €1000 for a period of two years. The credit agreement provides for payment of the total cost of the credit every month and repayment of the total amount of the credit at the end of the agreement. Administrative charges amount to 0.25% of the credit limit per month.

The assumption (a) that the amount of credit is drawn down immediately and in full applies here and to the rest of examples, which also refer to revolving credit agreements.

Also, as indicated at the beginning of the document, in these examples the borrowing rate is assumed to be given as an effective rate of 12%.

For this example, the monthly interest charges, calculated on the basis of the equivalent monthly rate as explained, are:

$$100 \; x \left[(1+r)^{1/12} - 1\right] = 100 \; x \left[(1+0.12)^{1/12} - 1\right] = 1000 \; x \; 0{,}9488793\% = \text{€}9.49$$

and the monthly payment of interest and charges:

$$A = 1000 \; x \; (0{,}9488793\% + 0.25\%) = \text{€} \; 11.99$$

The equation becomes:

$$1000 = 11.99 \frac{1}{(1+X)^{1/12}} + 11.99 \frac{1}{(1+X)^{2/12}} + \cdots + 11.99 \frac{1}{(1+X)^{23/12}} + (11.99 + 1000) \frac{1}{(1+X)^{24/12}}$$

or:

$$1000 = 11.99 \frac{1 - \dfrac{1}{(1+X)^{24/12}}}{(1+X)^{1/12} - 1} + 1000 \frac{1}{(1+X)^{24/12}}$$

giving X= 15.37578%, i.e. an EIR of 15.4%.

This example is representative of some revolving credit accounts.

EXAMPLE 19

Credit agreement for a maximum amount of €1000 in the form of an overdraft facility. The credit agreement does not impose any requirements in terms of repayment of capital, but provides for monthly payment of the total cost of the credit. Administrative charges amount to €2.5 per month.

According to assumption (h), which applies specifically to overdraft facilities, second sentence, if the duration of the credit agreement is not known, as is the case in this example, the annual percentage rate of charge shall be calculated on the assumption that the duration of the credit is three months.

Similar to the previous example, the monthly payment of interest and charges is given by:

$$A = 1000 \; x \; 0{,}9488793\% + 25\% = \text{€} \; 11.99$$

and the equation now becomes:

$$1000 = 11.99 \frac{1}{(1+X)^{1/12}} + 11.99 \frac{1}{(1+X)^{2/12}} + (11.99 + 1000) \frac{1}{(1+X)^{3/12}}$$

or:

$$1000 = 11.99 \frac{1 - \dfrac{1}{(1+X)^{3/12}}}{(1+X)^{1/12} - 1} + 1000 \frac{1}{(1+X)^{3/12}}$$

giving X= 15.375765%, i.e. an EIR of 15.4%.

EXAMPLE 20

Credit agreement for an open- end credit for a maximum amount of €1000. The credit agreement provides for payment of a fixed amount of €100 every month until the complete repayment of the credit is made. Administrative charges of €25 payable on conclusion of the agreement.

Although the credit agreement has an unlimited period of validity (open-end credit), the immediate draw down of the full amount of the credit and the scheme of the repayments determine that the credit is completely repaid in 11 months.

According to the amortization table, the amount of the last payment is only A11=55.77, which corresponds to the amount owed at the end of month 11.

The equation becomes:

$$1000 = 25 + 100\frac{1}{(1+X)^{1/12}} + 100\frac{1}{(1+X)^{2/12}} + \cdots + 100\frac{1}{(1+X)^{10/12}} + 55.77\frac{1}{(1+X)^{11/12}}$$

giving X= 18.151662%, i.e. an EIR of 18.2%.

This example is representative of some revolving credit accounts and credit cards.

EXAMPLE 21

Credit agreement for an open-end credit for a maximum amount of €1000. The credit agreement provides for payment of the total cost of the credit every month plus a minimum monthly payment of 20% of the outstanding balance (capital) with a minimum of €20. Administrative charges of €25 payable on conclusion of the agreement.

Although the credit agreement has an unlimited period of validity (open-end credit), the immediate draw down of the full amount of the credit and the scheme of the repayments determine that the credit is completely repaid in 16 months.

The 16 monthly repayments can be obtained from the amortization table, being A1 = 209.49; A2 = 167.59; A3 = 134.07; A4 = 107.26; A5 = 85.81; A6 = 68.65; A7 = 54.92; A8 = 43.93; A9 = 35.15; A10 = 28.12; A11 = 22.49; A12 = 20.82; A13 = 20.63; A14 = 20.44; A15 = 20.25; A16 = 5.96. Note that the last repayment might be lower than the minimum amount if the amount owed is lower than the minimum amount.

The equation becomes:

$$1000 = 25 + 209.49\frac{1}{(1+X)^{1/12}} + 167.59\frac{1}{(1+X)^{2/12}} + \cdots + 20.25\frac{1}{(1+X)^{15/12}} + 5.96\frac{1}{(1+X)^{16/12}}$$

giving X= 19.633825%, i.e. an EIR of 19.6%.

This example is representative of some revolving credit accounts and credit cards.

EXAMPLE 22

Credit agreement for an open-end credit for a maximum amount of €1000. The credit agreement provides for payment of the total cost of the credit every month plus a minimum monthly payment of 20% of the outstanding balance (capital) with a minimum of €20. Administrative charges of €25 payable on conclusion of the agreement plus monthly insurance costs given as 1.5% of the outstanding balance.

Although the credit agreement has an unlimited period of validity (open-end credit), the immediate draw down of the full amount of the credit and the scheme of the repayments determine that the credit is completely repaid in 16 months.

The 16 monthly repayments can be obtained from the amortization table, being A1 = 224.49; A2 = 179.59; A3 = 143.67; A4 = 114.94; A5 = 91.95; A6 = 73.56; A7 = 58.85; A8 = 47.08; A9 = 37.66; A10 = 30.13; A11 = 24.10; A12 = 22.10; A13 = 21.61; A14 = 21.12; A15 = 20.63; A16 = 6.04. Note that the last repayment might be lower than the minimum amount if the amount owed is lower than the minimum amount.

The equation becomes:

$$1000 = 25 + 224.49 \frac{1}{(1+X)^{1/12}} + 179.59 \frac{1}{(1+X)^{2/12}} + \cdots + 20.63 \frac{1}{(1+X)^{15/12}} + 6.04 \frac{1}{(1+X)^{16/12}}$$

giving X= 43.239947%, i.e. an EIR of 43.2%.

This example is representative of some revolving credit accounts and credit cards.

EXAMPLE 23

Credit agreement for an open-end credit for a maximum amount of €1000. The credit agreement provides for a minimum monthly payment of 20% of the outstanding balance (capital and interest), with a minimum of €20. The administrative charge payable on conclusion of the agreement is €25.

Although the credit agreement has an unlimited period of validity (open- end credit), the immediate draw down of the full amount of the credit and the scheme of the repayments determine that the credit is completely repaid in 16 months.

The 16 monthly repayments can be obtained from the amortization table, being A1 = 201.90; A2 = 163.05; A3 = 131.68; A4 = 106.34; A5 = 85.88; A6 = 69.36; A7 = 56.01; A8 = 45.23; A9 = 36.53; A10 = 29.50; A11 = 23.83; A12 = 20.00; A13 = 20.00; A14 = 20.00; A15 = 20.00; A16 = 18.00. Note that the last repayment might be lower than the minimum amount if the amount owed is lower than the minimum amount.

The equation becomes:

$$1000 = 25 + 201.90 \frac{1}{(1+X)^{1/12}} + 163.05 \frac{1}{(1+X)^{2/12}} + \cdots + 20.00 \frac{1}{(1+X)^{15/12}} + 18.00 \frac{1}{(1+X)^{16/12}}$$

giving X= 19.343775%, i.e. an EIR of 19.3%.

This example is representative of some revolving credit accounts and credit cards.

EXAMPLE 24

Credit agreement for an open-end credit for a maximum amount of €1000 involving the use of a card for drawdowns. The credit agreement provides for a minimum monthly payment of 20% of the outstanding balance (capital and interest), with a minimum of €20. The annual cost of the card linked to the credit facility is €25. The borrowing rate is 0% for the first installment and 12% for the subsequent installments

According to assumption 8, if different interest rates and charges are offered for a limited period or amount, the interest rate and the charges shall be deemed to be the highest rate for the whole duration of the credit agreement. Therefore, the EIR of this agreement should be calculated assuming a borrowing rate of 12% for the whole duration of the credit agreement.

Although the credit agreement has an unlimited period of validity (open-end credit), the immediate draw down of the full amount of the credit and the scheme of the repayments determine that the credit is completely repaid in 16 months.

The 16 monthly repayments can be obtained from the amortization table, being A1 = 226.90; A2 = 163.05; A3 = 131.68; A4 = 106.34; A5 = 85.88; A6 = 69.36; A7 = 56.01; A8 = 45.23; A9 = 36.53; A10 = 29.50; A11 = 23.83; A12 = 20.00; A13 = 45.00; A14 = 20.00; A15 = 20.00; A16 = 18.00.

Note that the last repayment might be lower than the minimum amount if the amount owed is lower than the minimum amount. Also, the cost of the card is charged at the beginning of each year (in advance), being payable at periods 1 and 13.

The equation becomes:

$$1000 = 226.90\frac{1}{(1+X)^{1/12}} + 163.05\frac{1}{(1+X)^{2/12}} + \cdots + 20.00\frac{1}{(1+X)^{15/12}} + 18.00\frac{1}{(1+X)^{16/12}}$$

giving X= 25.49955%, i.e. an EIR of 25.5%.

This example is representative of some credit cards.