



EUROPEAN CENTRAL BANK

EUROSYSTEM

Manual on MFI interest rate statistics

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1 Aim of this Manual

On 20 December 2001, the Governing Council of the European Central Bank (ECB) adopted Regulation ECB/2001/18 concerning statistics on interest rates applied by monetary financial institutions to deposits and loans vis-à-vis households and non-financial corporations. It was published in the Official Journal of the European Union on 12 January 2002¹ and came into force on 31 January 2002. This Regulation was amended three times² and was then recast by Regulation ECB/2013/34³ (hereafter referred to as “the Regulation”). Together with Guideline ECB/2014/15 on monetary and financial statistics⁴ (hereafter “the Guideline”), the Regulation defines the statistical standards according to which MFI interest rate statistics⁵ are collected and compiled in the European Union (EU). The Regulation is addressed to the reporting agents, i.e. monetary financial institutions (MFIs) except central banks and money market funds⁶, while the Guideline is addressed to the national central banks (NCBs), containing additional reporting requirements and instructing NCBs on data to be transmitted to the ECB, by when, in what format, etc. Unlike the Regulation, the Guideline leaves some discretion as to the choice of source for the data, provided that certain quality standards are met.

The Regulation and the Guideline are binding on the Member States participating in the Monetary Union (hereafter referred to as the “euro area Member States”). However, for non-participating Member States (hereafter the “non-euro area Member States”), Regulation (EC) No 2533/98 concerning the collection of statistical information by the European Central Bank implies an obligation to design and implement at national level all the measures that they consider appropriate to fulfil the ECB’s statistical reporting requirements in order for them to become participating Member States. Thus, non-euro area Member States are encouraged to follow the reporting requirements laid down by Regulation ECB/2013/34.

This Manual, by contrast, contains no additional requirements to those included in the Regulation and the Guideline and has no binding legal status. It aims to further clarify and illustrate these requirements, mainly through the use of extended definitions, explanations of the underlying concepts and examples. It also brings together detailed transcriptions from other legal acts referred to in the Regulation. A clear and consistent understanding of the statistical requirements contained in the Regulation and the Guideline by the statisticians in the NCBs of the European System of Central Banks (ESCB) and also in the accession countries is essential for

¹ OJ L 10, 12.1.2002, p. 24.

² Regulations ECB/2004/21, ECB/2009/7 and ECB/2010/7.

³ OJ L 297, 7.11.2013, p. 51.

⁴ OJ L 340, 26.11.2014, pp. 1-209.

⁵ To avoid making a potentially misleading distinction between “retail” and “wholesale” interest rates – expressions that can carry different meanings – the statistics developed under the above-mentioned Regulations are referred to as “MFI interest rate statistics”.

⁶ In this Manual, when reference is made to an MFI or to MFIs, this excludes central banks and money market funds.

the production of harmonised MFI interest rate (MIR) statistics. The information in this Manual may also interest reporting agents and users of the statistics.

The Manual is composed of 13 chapters. Chapter 2 sets out the scope of MFI interest rate statistics with special emphasis on the use of these statistics for monetary policy purposes. Chapter 3 defines the main terms contained in the Regulation. Chapter 4 discusses the types of interest rates compiled under the Regulation and the Guideline. Chapter 5 describes the business coverage of these statistics both in terms of new business and outstanding amounts and Chapter 6 explains the time reference point for these two statistical concepts. Chapter 7 provides an overview of the indicators available at the euro area and at the national level. Chapter 8 gives guidance on the treatment of specific deposit and loan products. Chapter 9 summarises the steps needed to aggregate the individual data to obtain euro area results. Chapter 10 defines the validation rules. Chapter 11 describes the principles of the revision policy and the revision criteria. Chapter 12 sets out the method for selecting the reporting agents for MFI interest rate statistics. It tackles a full range of sampling issues, including the stratification procedure, the definition of the minimum sample size, the way of allocating the sample across strata, and the maintenance of the sample over time. Finally, Chapter 13 illustrates the calculation and usage of derived indicators based on the MFI interest rate statistics, such as the Bennet binary indices for rates and weights, the Bennet chain indices, the coefficients of cross-country variation and the cost-of-borrowing indicators.

2 Scope and uses of MFI interest rate statistics

The scope of euro area MFI interest rate statistics is all interest rates that MFIs resident in the euro area apply to euro-denominated deposits and loans vis-à-vis non-financial sectors (other than government) resident in the euro area, i.e. vis-à-vis households and non-financial corporations of any size. In practice, mainly credit institutions (as defined in Article 4(1) of Regulation (EU) No 575/2013) need to report MFI interest rate statistics.⁷ The statistics are compiled for the euro area as a whole and individually for each euro area Member State in order to give information about the level and development of interest rates both at euro area and at national level. Additionally, for each non-euro area Member State, the scope of MFI interest rate statistics is all interest rates that MFIs resident in that Member State apply to deposits and loans in euro and national currency vis-à-vis non-financial sectors (other than government) resident in the Member State, i.e. vis-à-vis households and non-financial corporations of any size.

The MFI interest rate statistics are broken down by original and residual maturity, notice and interest rate reset period, or initial period of interest rate fixation. Loans to households are further broken down by the purpose of the loan, while loans to non-financial corporations are divided into categories according to the size of the loan. In addition, information on loans with collateral and/or guarantees is collected. Data on renegotiated loans are also provided. All this information is organised into 117 indicators, of which 91 refer to new business and 26 to outstanding amounts. New business is defined as any new agreement between the customer and the MFI. Outstanding amounts are defined as the stock of all deposits placed by customers, i.e. households and non-financial corporations, with MFIs, and the stock of all loans granted by MFIs to customers.⁸

MFI interest rate statistics are collected and compiled at monthly frequency. The first data were compiled for the reference month January 2003. Additional historical series on some interest rates on new business are available for euro area Member States starting with data referring to January 2000. These interest rates have been estimated either by the respective NCB or by the ECB in agreement with the NCB.

The MFI interest rate statistics have four main uses:

- To analyse the *monetary policy transmission mechanism*, as monetary policy is transmitted through the economy via changes in interest rates. First, the statistics enable the studying of the pass-through of changes in official rates and market interest rates to lending and deposit interest rates faced by households and non-financial corporations. Information about the speed and

⁷ More detailed definitions and further explanations are given in Chapter 3.

⁸ See Chapter 5 for a more detailed description of new business and outstanding amounts.

extent of the pass-through is essential to understand the effect of monetary policy on the demand for consumption and investment. Second, changes in MFI interest rates affect the cost of capital and so influence investment decisions and substitution between current and future consumption. MFI interest rate statistics are, therefore, vital for any economic analysis over time. Third, the statistics allow income effects to be analysed, as changes in MFI interest rates affect the interest paid or received by households and non-financial corporations and hence the disposable income of these sectors. Finally, MFI interest rate statistics enable users to analyse the credit channel of monetary policy, in particular the cost spread between self-financing and credit, or the so-called external finance premium.

- To enhance the *monetary analysis* in the euro area. Ideally, prices and quantities are analysed together. Information on the remuneration of M3 and its components is one essential factor to assess portfolio shifts between monetary and non-monetary assets as well as among monetary instruments. For instance, a steepening of the yield curve may determine an increase in the remuneration of longer-term deposits which results in an increased volume of these deposits placed with MFIs (either inside or outside M3). As deposits constitute the largest component of M3, monitoring their remuneration is essential to explain the dynamics of monetary growth and its effects on price stability. Similarly, detailed MFI interest rates allow developments in loans to the private sector to be analysed.
- To monitor *structural developments* in the banking and financial system and to analyse financial stability issues. Users may study the development of banks' interest rate margins and changes in their profitability, and potentially adverse developments that may damage financial stability, such as how quickly banks' interest rate margins react to external developments or how the interest burden changes for households and non-financial corporations.
- To analyse *financial integration*. Harmonised interest rate statistics provide information on the convergence of interest rates across euro area Member States and shed light on the degree of integration of the retail banking markets in the euro area.

In conclusion, MFI interest rate statistics are essential to well-founded monetary policy decision-making. Monetary authorities need to be frequently and rapidly informed of the changes in these interest rates, so as to assess the reach, scope or delayed effect of monetary decisions and their change over time. Furthermore, these statistics are a very valuable tool for the analysis of financial stability as they support the assessment of bank profitability and competition. MFI interest rate statistics are designed to meet all these needs.

Table 1

Main uses of the reported indicators

	Scope of analysis							
	Monetary transmission				Monetary analysis		Financial stability	Financial Integration
	Interest rate channel			Credit channel				
	Pass-through of interest rates	Cost of capital substitution effect	Income effect	External finance premium	Money demand	Credit demand	Bank competition, bank profitability	Convergence of retail interest rates and of cost of borrowing
Interest rates on outstanding amounts ⁹			X		X	X	X	X
Interest rates on new business	X	X		X	X	X	X	X

⁹ Where outstanding amounts consist of a significant part of variable rate business, the related rates may also provide information on the pass-through of interest rates.

3 Basic definitions

In order to ensure the comparability of MFI interest rate statistics with other macroeconomic statistics produced at European level, the Regulation relies, to the extent possible, on existing frameworks such as the European System of National and Regional Accounts (ESA 2010)¹⁰ and the ECB's MFI balance sheet statistics¹¹. The Regulation therefore uses a number of expressions that are common to European and, in particular, to euro area statistics, but also terminology that is specific to MFI interest rates. The main terms are defined in Article 1 of the Regulation. In the following, these definitions are explained in more detail.

A euro area Member State is a country that has adopted the single currency in accordance with the Treaty establishing the European Community.¹²

An entity is regarded as a *resident*¹³ of a Member State (Article 1(1)) when it has a centre of economic interest in the territory of that Member State, i.e. when it has engaged for a year or more in economic activity in that territory, or when it has registered or indicated an intention to operate permanently in that territory. For euro area Member States' MFI interest rate statistics, the interest rates and weights refer to deposits by and loans to customers resident in the euro area.¹⁴ No distinction is made for customers between domestic residents and residents of the other euro area Member States. For example, the Bank of Greece collects data on interest rates that MFIs resident in Greece apply for customers resident in Greece and in the other euro area Member States, but not for customers resident outside the euro area. The main reason for excluding residents outside the euro area is that the monetary authority of the euro area needs to monitor how the monetary policy actions are being transmitted to savers and investors of the euro area, since these two kinds of agents are the ones that determine the demand for consumption and investment within the euro area. The demand for consumption and investment, in turn, are relevant variables to achieve price stability. It is outside the scope of euro area monetary policy to influence the demand for consumption and investment of those residents outside the euro area.

The reporting scheme defined in the Regulation applies only to MFIs other than central banks and money market funds included in the "list of MFIs"¹⁵. E-money institutions are MFIs, so they are covered by MFI interest rate statistics. In principle,

¹⁰ Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 (OJ L 174, 26.6.2013).

¹¹ Regulation ECB/2013/33 (OJ L 297, 7.11.2013, p. 1).

¹² This also includes the associated territories or countries that have been authorised to adopt the euro as their legal currency and in which the single monetary policy of the ECB is conducted. For instance, this is the case of Monaco and the French overseas territories of Saint-Pierre-et-Miquelon and Mayotte.

¹³ Defined in Article 1 of Regulation (EC) No 2533/98.

¹⁴ For non-euro area Member States, this should read here and in the rest of the document "resident in the same Member State as the reporting MFI".

¹⁵ A comprehensive list of all MFIs in the European Union is produced and published by the ECB. Further information and the list are available on the [ECB's website](#).

money market funds should be covered also; however, as their business is not to receive deposits or grant loans, money market funds do not pay interest on their liabilities or receive interest on their assets in the same way as other MFIs.

MFI *interest rate statistics* (Article 1(5)) cover interest rates that resident MFIs apply to euro-denominated¹⁶ deposits and loans vis-à-vis *households* and *non-financial corporations* (Article 1(2 and 3)). The sector classification follows the principles established in Chapter 2 of the ESA 2010¹⁷, except for *non-profit institutions serving households* (NPISHs) which, as in Regulation ECB/2013/33, are included in the household sector, as NPISHs are usually not as important as the other two sectors with respect to the amount of loans and deposits on their balance sheet.¹⁸

The *reference reporting population* (Article 1(7)) follows from the scope of MFI interest rate statistics. In each Member State, the *reference reporting population* comprises all resident MFIs except central banks and money market funds which take euro-denominated deposits from and/or grant euro-denominated loans to households and/or non-financial corporations resident in the euro area Member States. This means that the customers may be resident anywhere in the euro area, not necessarily in the same Member State as the reporting MFI. As explained above, the Regulation does not require a distinction between domestic residents and residents of the other euro area Member States and does not apply to central banks and money market funds.

NCBs select the *reporting agents* (Article 1(1)) for MFI interest rate statistics from the reference reporting population which, for each Member State, comprises only resident entities. All reporting agents together constitute the *actual reporting population* (Article 2)¹⁹. Reporting agents are the legal and natural persons that are subject to the ECB's statistical reporting requirements. They include the entities that, according to the national law of their Member State of residence, are neither a legal person nor a collection of natural persons, but can be subject to rights and obligations. The persons legally representing these entities must fulfil their reporting obligations.

¹⁶ For non-euro area Member States, this should read here and in the rest of the document "euro and national currency".

¹⁷ See also *Money and Banking Statistics – Sector Manual – Guidance for the statistical classification of customers*, ECB, third edition, March 2007. The sector breakdown is further discussed in Section 7.4. For the treatment of NPISHs, see also Section 4.4.6.

¹⁸ In a few Member States, loans to NPISHs form, however, a non-negligible part of loans to households and NPISHs.

¹⁹ Further discussed in Section 12.1.

4 Types of interest rate²⁰

4.1 Nominal versus effective interest rates

The terms “nominal interest rate” and “effective interest rate” have a range of different meanings depending on the Member State and the context. Also, there is a specific terminology in the banking business related to interest rates, e.g. advertised nominal rates and prime rates. Advertised nominal rates are interest rates that are displayed by banks as the headline rates in the windows of their branches, their leaflets, advertisements, newspapers, other journals, on their websites, etc. These rates give customers an indication of the current interest rate level for different banking products. The advertised nominal rates might be applied to highly standardised deposits and loan products, but are not necessarily the rates that the bank actually pays or charges its customers. The advertised nominal rates might also be prime rates that the banks offer to their most creditworthy customers. In this case, the rate actually applied to a deposit or loan might be less favourable than the advertised nominal rate.

Given this diversity in the terms applied and the fact that the same term does not always carry the same meaning or follow the same methodology in different countries, it is potentially misleading to use ambiguous terms in the context of MFI interest rates. Therefore, it might be more useful to briefly describe the main features of these rates and to leave it to the individual user of the statistics to decide what to call them.

- MFI interest rates are *agreed* rates: The data collected refer to the interest rate that is individually agreed between an MFI and its customer. MFI interest rates are hence distinct from advertised nominal rates, because households and non-financial corporations might be able to negotiate better terms and conditions²¹ than those advertised. However, customers may also be offered worse terms and conditions due to e.g. a lack of creditworthiness.
- MFI interest rates are *annualised*: They are converted to an annual basis and quoted in percentages per annum. This means that MFI interest rates take into account the frequency of interest payments. *Ceteris paribus*, the more frequent the interest payments, the higher the MFI interest rate recorded in the statistics.²² Two possibilities exist for annualising interest rates: either an algebraic formula leading to the annualised agreed rate (AAR) or successive approximation resulting in the *narrowly defined effective rate* (NDER), both of which are discussed in Section 4.2.

²⁰ This chapter refers mainly to Part 1 of Annex I to the Regulation.

²¹ The meaning of the expression “terms and conditions” is specified in Section 5.4.1.

²² See also Equations 2 and 3 below.

- 115 out of the 117 MFI interest rate categories exclude charges: For deposits, MFIs pay interest to the customer but might also charge fees. Analogously, for loans the customer has to pay an amount comprising an interest rate component and a component made up of other related charges. The *annual percentage rate of charge* (APRC) is an effective lending rate that covers the total costs of the credit to the consumer, i.e. the interest payments as well as all other related charges. The concept of “total costs for the consumer” was designed for the purpose of consumer protection. The compilation of the APRC is defined in Directives 2008/48/EC and 2014/17/EU and further explained in Section 4.4. The two exceptions are the additional series collected for loans to households for consumption and for house purchases, where in addition to a rate without charges the APRC is also required.

4.2 Annualised agreed rate and narrowly defined effective rate²³

4.2.1 Annualised agreed rate

The *annualised agreed rate* (AAR) is defined in paragraph 1 of Annex I to the Regulation as “the interest rate that is individually *agreed* between the reporting agent and the household or non-financial corporation for a deposit or loan, converted to an annual basis and quoted in percentages per annum”. The AAR covers all interest payments on deposits and loans, but no other charges that may apply. Disagio (or discount in common language)²⁴, defined as the difference between the nominal amount of the loan and the amount received by the customer, is considered as an interest payment at the start of the contract (time t_0) and is therefore reflected in the AAR.

An annualised agreed rate reflects the creditworthiness and other qualities of the customer (in respect of loans) and the solvency and other qualities of the credit institution as determined by the customer (in respect of deposits). The AAR is influenced by the budget, capital or other constraints faced by the credit institution in granting loans and taking deposits, including competition with other types of financial institutions and products. It is a result of the demand and supply conditions in the deposit and loan markets.

Paragraph 2 of Annex I to the Regulation provides the formula for annualising the agreed interest rate, i.e. for converting interest payments that are due at regular intervals within a year to a yearly basis. It is applied in cases where the interest payments that are agreed between the MFIs and the customer are capitalised at regular intervals within a year, for example per month or quarter, rather than per annum:

²³ See also paragraphs 1, 2 and 3 of Annex I to the Regulation.

²⁴ See also Section 4.2.8.

$$x = \left(1 + \frac{r_{ag}}{n}\right)^n - 1 \quad [1]$$

where:

- x is the annualised agreed rate
- r_{ag} is the interest rate per annum that is agreed between the reporting agents and the household or non-financial corporation for a deposit or loan where the dates of the interest capitalisation of the deposit and all the payments and repayments of the loan are at regular intervals in the year
- n is the number of interest capitalisation periods for the deposit and ~~(re)payment periods for~~²⁵ the loan per year, i.e. 1 for yearly payments, 2 for semi-annual payments, 4 for quarterly payments, and 12 for monthly payments

For example, a customer and a credit institution agree on a five-year loan at 10% per annum (p.a.) for the entire maturity, where the interest is paid at the end of each quarter and the principal repaid at the end of the fifth year. The annualised agreed rate for this loan is then 10.3813% p.a. and it is calculated as follows:

$$x = \left(1 + \frac{r_{ag}}{n}\right)^n - 1 = \left(1 + \frac{0.10}{4}\right)^4 - 1 = 0.10381289 \quad [2]$$

If, in the same example, the interest payments were at monthly frequency, then the AAR would be slightly higher at 10.4713% p.a. and it is calculated as follows:

$$x = \left(1 + \frac{r_{ag}}{n}\right)^n - 1 = \left(1 + \frac{0.10}{12}\right)^{12} - 1 = 0.10471307 \quad [3]$$

In the case of daily interest capitalisation, $n = 365$ should be used in Equation 1 following the convention of a standard year of 365 days as specified in paragraph 12 of Annex I to the Regulation.²⁶ In the above example for a loan, the AAR for monthly interest payments would be 10.5156% p.a. and it is calculated as follows:

$$x = \left(1 + \frac{r_{ag}}{n}\right)^n - 1 = \left(1 + \frac{0.10}{365}\right)^{365} - 1 = 0.105156 \quad [4]$$

Equation 1 may also be used to derive the AAR, for example in the case of a deposit of EUR 10,000 that is placed for two years where EUR 11,000 is paid out to the customer at maturity. During the two years, the customer earns 10%. The AAR is 4.8809% and calculated as follows:

$$x = \left(1 + \frac{r_{ag}}{n}\right)^n - 1 = \left(1 + \frac{0.10/2}{1/2}\right)^{1/2} - 1 = 0.048809 \quad [5]$$

²⁵ The text in strikethrough is included in the Regulation. However, the application of the formula is clearer without it. See also Section 4.2.3.

²⁶ If 360 days were used in the formula as a standard year instead of the convention of 365 days, a different result would be achieved. The size of the difference depends on the level of the agreed interest rate r_{ag} .

4.2.2 Narrowly defined effective rate

Instead of the annualised agreed rate, NCBs may require their reporting agents to implement the *narrowly defined effective rate* (NDER) for all or some deposit or loan instruments referring to new business and outstanding amounts. The NDER refers to an annual basis and is defined as the interest rate that equalises the present value of all commitments other than charges (deposits or loans, payments or repayments and interest payments), future or existing, agreed by the MFI and the household or non-financial corporation. The NDER is equivalent to the interest rate component of the APRC²⁷, i.e. it does not take into account the component of other charges. Hence, the basic formula for the APRC in Annex I of Directive 2008/48/EC and in Annex I of Directive 2014/17/EU applies, which is given as Equation 7 in Section 4.4, but without the references to other charges. This Equation 7 is equivalent to the formula proposed by the International Capital Market Association²⁸ for the exponential interest rate calculation for all maturities. Hence, in the case when years are considered to have 365 days and the amount of the deposit or loan is placed or paid out in one amount, the following applies:

$$A = \sum_{n=1}^N \frac{CF_n}{(1+i)^{\frac{D_n}{365}}} = \sum_{n=1}^N \left(CF_n * (1+i)^{-\frac{D_n}{365}} \right) \quad [6]$$

where:

- i is the interest rate (NDER)
- CF_n is the cash flow n , from the perspective of the investor in the case of deposits and from the point of view of the credit institution in the case of loans
- N is the number of cash flows associated with the financial instrument
- A is the present value of the total paid-out amount
- D_n is the timing of the cash flow n , expressed in days after the first cash flow (in general, the date of investment of the deposit or valuation of the loan)

One of the differences between the NDER and the AAR is the underlying method for annualising interest payments. The NDER uses successive approximation and can be applied to any type of deposit or loan. The AAR uses the algebraic formula in Equation 1 and is only applicable to deposits and loans where the dates of interest capitalisation are at regular intervals and the interest payments are as frequent as, or more frequent than, the repayments of the principal.

Both types of rates, the NDER and the AAR, may be reported for the purpose of MFI interest rate statistics. The reason is that for products with regular capitalisation periods, where interest payments occur more frequently or equally frequently than the repayments of the principal, including all cases where the principal is repaid in

²⁷ Further discussed in Section 4.4.

²⁸ Formerly the International Securities Market Association.

full at the end of the contract, the AAR and the NDER coincide.²⁹ One formula can be derived from the other. This applies also to products with irregular or exceptional repayments of the principal as long as these do not occur more frequently than the interest payments.³⁰ Hence, for the majority of retail products the NDER and the AAR lead to the same result.

It should be noted, however, that for products with complex cash flows only the NDER gives the mathematically correct result and the AAR an approximation.

For example, Equation 2 gives an AAR of 10.3813% p.a. for a five-year loan at 10% where the interest is paid at the end of each quarter and the principal repaid at maturity. The same result is achieved with Equation 6 for the NDER, if the calculation refers to a standard year of 365 days (see Table 2).

Table 2

Five-year loan, quarterly interest rate payments, repayment of principal at the end of year 5: standard year of 365 days

	t	Outstanding loan	Interest rate p.a.	Interest payments	Repayments of principal	Cash flow	Discount factor = $(1+NDER)^{-t/365}$	Present value of cash flow	NDER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0	10,000				-10,000			
1YQ1	91.25	10,000	10%	250	0	250	0.976	243.9	10.3813%
1YQ2	182.5	10,000	10%	250	0	250	0.952	237.95	10.3813%
1YQ3	273.75	10,000	10%	250	0	250	0.929	232.15	10.3813%
1YQ4	365	10,000	10%	250	0	250	0.906	226.49	10.3813%
2YQ1	456.25	10,000	10%	250	0	250	0.884	220.96	10.3813%
2YQ2	547.5	10,000	10%	250	0	250	0.862	215.57	10.3813%
2YQ3	638.75	10,000	10%	250	0	250	0.841	210.32	10.3813%
2YQ4	730	10,000	10%	250	0	250	0.821	205.19	10.3813%
3YQ1	821.25	10,000	10%	250	0	250	0.801	200.18	10.3813%
3YQ2	912.5	10,000	10%	250	0	250	0.781	195.3	10.3813%
3YQ3	1,003.75	10,000	10%	250	0	250	0.762	190.54	10.3813%
3YQ4	1,095	10,000	10%	250	0	250	0.744	185.89	10.3813%
4YQ1	1,186.25	10,000	10%	250	0	250	0.725	181.35	10.3813%
4YQ2	1,277.5	10,000	10%	250	0	250	0.708	176.93	10.3813%
4YQ3	1,368.75	10,000	10%	250	0	250	0.69	172.62	10.3813%
4YQ4	1,460	10,000	10%	250	0	250	0.674	168.41	10.3813%
5YQ1	1,551.25	10,000	10%	250	0	250	0.657	164.3	10.3813%
5YQ2	1,642.5	10,000	10%	250	0	250	0.641	160.29	10.3813%
5YQ3	1,733.75	10,000	10%	250	0	250	0.626	156.38	10.3813%
5YQ4	1,825	10,000	10%	250	10,000	10,250	0.61	6,255.27	10.3813%
			Sum	5,000	10,000		RHS:	10,000	

²⁹ See also Section 4.2.3.

³⁰ See also Section 4.2.4.

The interest rate would be slightly lower in this example, at 10.3758% p.a., if it was recognised that, for example, year 4 is a leap year with 366 days. This is shown in Table 3.

Table 3

Five-year loan, quarterly interest rate payments, repayment of principal at the end of year 5, year 4 is leap year

	t	Outstanding loan	Interest rate p.a.	Interest payments	Repayments of principal	Cash flow	Discount factor = $(1+NDER)^{-t/365}$	Present value of cash flow	NDER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0	10,000				-10,000			
1YQ1	91.25	10,000	10%	250	0	250	0.976	243.9	10.3758%
1YQ2	182.5	10,000	10%	250	0	250	0.952	237.95	10.3758%
1YQ3	273.75	10,000	10%	250	0	250	0.929	232.15	10.3758%
1YQ4	365	10,000	10%	250	0	250	0.906	226.49	10.3758%
2YQ1	456.25	10,000	10%	250	0	250	0.884	220.96	10.3758%
2YQ2	547.5	10,000	10%	250	0	250	0.862	215.57	10.3758%
2YQ3	638.75	10,000	10%	250	0	250	0.841	210.32	10.3758%
2YQ4	730	10,000	10%	250	0	250	0.821	205.19	10.3758%
3YQ1	821.25	10,000	10%	250	0	250	0.801	200.18	10.3758%
3YQ2	912.5	10,000	10%	250	0	250	0.781	195.3	10.3758%
3YQ3	1,003.75	10,000	10%	250	0	250	0.762	190.54	10.3758%
3YQ4	1,095	10,000	10%	250	0	250	0.744	185.89	10.3758%
4YQ1	1,187.25	10,000	10%	250	0	250	0.725	181.34	10.3758%
4YQ2	1,278.5	10,000	10%	250	0	250	0.708	176.91	10.3758%
4YQ3	1,369.75	10,000	10%	250	0	250	0.69	172.6	10.3758%
4YQ4	1,461	10,000	10%	250	0	250	0.674	168.39	10.3758%
5YQ1	1,552.25	10,000	10%	250	0	250	0.657	164.29	10.3758%
5YQ2	1,643.5	10,000	10%	250	0	250	0.641	160.28	10.3758%
5YQ3	1,734.75	10,000	10%	250	0	250	0.626	156.38	10.3758%
5YQ4	1,826	10,000	10%	250	10,000	10,250	0.61	6,255.15	10.3758%
			Sum	5,000	10,000		RHS:	1,0000	

Equation 5 gives an AAR of 4.8809% p.a. for a deposit of EUR 10,000 that is placed for two years, where the customer receives EUR 11,000 from the credit institution at maturity. The NDER for this example leads to the same result; the calculation is shown in Table 4.

Table 4

Deposit with an agreed maturity of two years, interest payment at the end of the second year

	t	Outstanding loan	Interest rate p.a.	Interest payments	Repayments of principal	Cash flow	Discount factor = $(1+NDER)^{-t/365}$	Present value of cash flow	NDER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0	10,000				-10,000			
1Y	365	10,000	0%	0	0	0	0.953	0	4.8809%
2Y	730	0	10%	1,000	10,000	11,000	0.909	10,000	4.8809%
			Sum	1,000	10,000		RHS:	10,000	

4.2.3 Clarification of the variable n in the annualised agreed rate formula

Question:

Which value should variable n take in the AAR formula (Equation 1) when the interest payments and the repayment of a loan occur at different but regular intervals?

Case A: A customer and a credit institution agree on a two-year loan at 10% p.a. with monthly interest payments. The principal is repaid at the end of the second year. Should variable n in Equation 1 be:

1. equal to 12 (based on the frequency of interest payments), or
2. equal to $\frac{1}{2}$ (based on the repayment frequency)?

Case B: A customer and a credit institution agree on a five-year loan at 10% p.a. for the entire maturity, where the interest should be paid at the end of each quarter and the principal should be paid back in tranches on a monthly basis. Should n in Equation 1 be:

1. equal to 4 to only reflect quarterly interest payments, or
2. equal to 12 to also include the repayments?

Answer:

As a general rule, for MFI interest rate statistics the value of variable n in Equation 1 is determined by the frequency of the interest payments and not by the repayment periods of the principal. If this rule is followed, the AAR coincides with the NDER³¹ whenever the interest payments are more frequent than or as frequent as the repayments of the principal. This includes all cases where the principal is repaid at the end of the contract. An overview of possible combinations of interest payment and repayment frequencies is given in the following matrix.

³¹ Further discussed in Section 4.2.2.

Table 5

Possible combinations of interest payment and repayment frequencies

		Frequency of interest payments		
Frequency of repayment of principal		Monthly (.M)	Quarterly (.Q)	Yearly (.Y)
	Monthly (M.)	M.M	M.Q	M.Y
	Quarterly (Q.)	Q.M	Q.Q	Q.Y
	Yearly (Y.)	Y.M	Y.Q	Y.Y
	End of contract (E.)	E.M	E.Q	E.Y

It is expected that, in general, the frequency of the interest payments is higher than or equal to the repayment frequency of the principal (light grey boxes in Table 5) and that hence the AAR and the NDER coincide. An example is Case A, where variable n in Equation 1 is equal to 12 reflecting the number of interest payments per year. As the interest payments are at regular monthly intervals and the principal is repaid in full at the end of the contract, i.e. situation E.M in Table 5, Equation 1 provides for $n = 12$ the same result as the NDER, i.e. an interest rate of 10.4713%.

In the remaining cases, where the frequency of the interest payments is lower than that of the repayments of the principal (dark grey boxes in Table 5), the AAR deviates from the NDER. The NDER then represents the mathematically correct calculation and the AAR only an approximation. An example is Case B, where variable n in Equation 1 is equal to 4, reflecting the quarterly interest payments. Since the repayments of the principal are at monthly frequency, the AAR differs from the NDER, i.e. situation M.Q in Table 5. The AAR is 10.3813% and the NDER is 10.3795%.

The AAR and the NDER for a five-year loan at 10% p.a., with the combinations of interest payment and repayment frequencies as given in Table 5 are summarised in Table 6.

Table 6

Five-year loan at 10% p.a., with the combinations of interest payment and repayment frequencies

		Frequency of interest payments					
		Monthly (.M)		Quarterly (.Q)		Yearly (.Y)	
		AAR	NDER	AAR	NDER	AAR	NDER
Frequency of repayment of principal	Monthly (M.)	10.4713		10.3813	10.3795	10.0000	9.0022
	Quarterly (Q.)	10.4713		10.3813		10.0000	9.0331
	Yearly (Y.)	10.4713		10.3813		10.0000	
	End of contract (E.)	10.4713		10.3813		10.0000	

4.2.4 Treatment of exceptional repayments of principal

Question:

Is it in line with the Regulation to apply the AAR formula (Equation 1) to financial contracts with regular interest capitalisation, for example quarterly interest payments, which provide the option to the customer to have exceptional repayments?

Answer:

Repayments of the principal whether regular or irregular only influence the level of the AAR and NDER if the repayments are more frequent than the interest payments. This is analogous to the issue discussed in Section 4.2.3. For example, in the case of monthly interest payments and exceptional repayments of the principal that are not more frequent than monthly, the AAR and the NDER coincide, with $n = 12$ in Equation 1 reflecting the frequency of interest payments per year. Likewise, if the interest is paid quarterly and the possibility of exceptional repayments of the principal occurs not more frequently than quarterly, the AAR and the NDER coincide, with $n = 4$ in Equation 1.

It is assumed that, in general, the interest is paid more frequently than exceptional repayments take place. Hence, the variable n in Equation 1 is determined by the frequency of the interest payments and the possibility of exceptional repayments can be ignored. If exceptional repayments occur more frequently than the interest payments, then the AAR deviates from the NDER. In that case, the NDER represents the mathematically correct calculation and the AAR an approximation.

4.2.5 The annualised agreed rate formula for indefinite loans

Question:

Can the AAR formula (Equation 1) also be applied to loans that have been granted to customers indefinitely but still have regular interest payments?

Answer:

The variable n in Equation 1 refers not to the maturity of the loan but to the frequency of the interest payments. Hence, Equation 1 can be applied.

4.2.6 The annualised agreed rate formula applied to revolving loans and overdrafts and extended credit card credit

Question:

What should n be in the AAR formula (Equation 1) for revolving loans and overdrafts and extended credit card credit³² that are characterised by irregular, rather than predefined, periods of utilisation and/or repayment, and interest payments that are based on the daily outstanding amount? Should n be equal to 365?

³² Defined in Chapter 7.

Answer:

The use of $n = 365$ in Equation 1 assumes that the interest is paid on a daily basis as in Equation 4. In this example, however, the interest is computed (*ex post*) by using the daily outstanding amount, but the interest is paid at the end of the month. In the case of monthly interest payments, variable n is equal to 12; in the case of quarterly interest payments it is equal to 4.

4.2.7 The annualised agreed rate formula for one-off deposits

Question:

Should the AAR formula (Equation 1) be applied in the case of a one-off deposit with an agreed maturity of three months?

Answer:

For a one-off deposit with an agreed maturity of three months, two cases can be distinguished. If the interest is paid at the end of each month, variable n in Equation 1 is equal to 12. If the interest is paid at the end of the three months, then n is equal to 4. For example if 10% is agreed for the three-month deposit, then the AAR for $n = 12$ is 10.47% and for $n = 4$ it yields 10.38%.

4.2.8 Treatment of disagio³³

Question:

The last sentence in paragraph 1 of Annex I to the Regulation states: “Disagio, defined as the difference between the nominal amount of the loan and the amount received by the customer, shall be considered as an interest payment at the start of the contract (time t_0) and shall therefore be reflected in the AAR.” How should the following cases of disagio be treated in the AAR?

Case A: Disagio in the sense that the agreed monthly interest payments are made at the end of the previous period.

Case B: Disagio in the sense that the agreed monthly interest payments are made at the end of the previous period, with a different interest rate for the first period.

Case C: Disagio in the sense of a payment at the beginning of the contract that has no link with the subsequent interest payments, which are based on the outstanding amount of the loan in the previous period.

Answer:

In Cases A, B and C, the correct interest rate can be given by the NDER. In Cases A and B, it might be possible to reflect the advance payment for the first period as disagio in Equation 1. However, this formula ignores for all other periods that the

³³ “Disagio” is usually known as “discount”.

interest is paid in advance and not at the end of the period. For such a complex product, only the NDER will yield the correct result.

4.2.9 Treatment of agio

Question:

How should the AAR be determined when the financial contract includes an agio defined as the “inverse” of a disagio,³⁴ i.e. the price being higher than the nominal amount of the loan or non-negotiable debt security? Should the agio be incorporated at all? An example is the following purchase of a (borrowers’) note loan (Schuldscheindarlehen), where the agio is included in the purchase price of the note loan:

- Purchase of note loan on 6 March 2014, nominal: EUR 5,112,918.81
- Value date: 10 March 2014
- Interest rate: 7.60%
- Original maturity: 25 March 2012 – 25 March 2015
- Purchase price: EUR 5,403,332.60
- Agio (included in purchase price): EUR 5,403,332.60 – EUR 5,112,918.81 = EUR 290,413.79

Answer:

The (secondary) purchase of this note loan on 6 March 2014 is not considered to be *new business*³⁵ because no new funds are being granted to the borrower and no new terms and conditions³⁶ are negotiated for the borrower. The (secondary) purchase is simply a change in ownership of the note loan. New business would only occur in the case of a (primary) issue of the note loan by an MFI, where at the time of issue the borrower receives money through the issuance of a financial instrument, which according to the ECB’s MFI balance sheet statistics is classified as a loan rather than a debt security. If this primary issue involves an agio, it would be reflected in the MFI interest rate.

The agio is reflected in the MFI interest rate statistics on *outstanding amounts*,³⁷ irrespective of whether the note loan or non-negotiable debt security is initially issued or subsequently acquired by the MFI. The agio results in a reduction of the interest rate. The rate was 7.6% on EUR 5,112,918.81, which results in an interest payment of EUR 388,581.83. This amount applied to the now higher purchase price of EUR 5,403,332.60 is equivalent to an interest rate of 7.1915%. The latter is, from 6 March 2014 onwards, reflected in the MFI interest rate statistics on outstanding amounts.

³⁴ See also Section 4.2.8.

³⁵ See also Section 5.4.1.

³⁶ The meaning of this expression is specified in Section 5.4.1.

³⁷ See also Section 5.2.

The same holds true for the (primary) issue and (secondary) purchase of any other non-negotiable debt security, which according to MFI balance sheet statistics is to be classified as a loan.

4.2.10 Annualising variable interest rates

Question:

In March 2014 a customer and a credit institution agree on a two-year loan with a variable interest rate. The contract specifies the lending rate as a certain spread over an underlying index. The value of the interest rate for the first month, i.e. March 2014, is 10%. In March 2014 there is no information regarding the future development of the interest rate for the loan as it will rise and fall based on the movement of the underlying index. In which way would the reporting agent calculate the AAR or the NDER in March 2014? Should it be assumed that the interest rate is 10% for the remaining periods?

Answer:

For the statistics on *new business*,³⁸ the interest rate that is taken into account in the calculation of the AAR or the NDER is 10%. In general, for variable rates it is assumed that the interest rate remains constant at the level on the date of agreement on the contract, in this example at 10%. This is the same as assuming that the future unknown development of the interest rate is not taken into account. Hence, if the variable rate is agreed and paid per annum, the AAR or the NDER to be recorded under new business in March 2014 is 10%. If the variable rate is to be paid per month or quarter, the interest rate needs to be annualised. The AAR and the NDER would then be 10.4713% and 10.3813% respectively.

The interest rate that is recorded for new business is also reflected in the statistics on outstanding amounts³⁹ as the first reporting in March 2014, assuming a total or partial withdrawal of the loan on this date. The subsequent reporting on *outstanding amounts* reflects the interest rate applied by the reporting institution at the time of the calculation of MFI interest rates and hence shows the variability of the interest rate over time.

³⁸ See also Section 5.4.1.

³⁹ See also Section 5.2.

4.3 Treatment of taxes, subsidies and regulatory arrangements⁴⁰

4.3.1 Taxes, subsidies and favourable rates

The AAR and the NDER reflect what the reporting agent pays on deposits and receives for loans. If the amount paid by one party and received by the other differs, the *point of view of the reporting agent* determines the interest payment covered by MFI interest rate statistics. Following this principle, MFI interest rates:

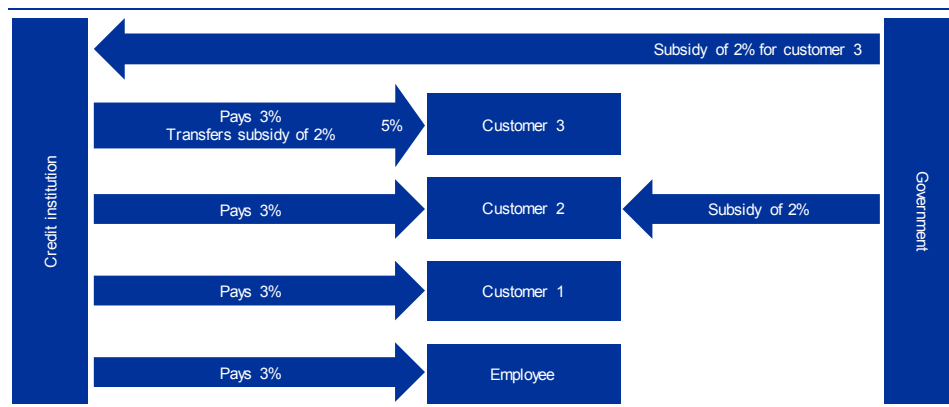
- are recorded on a gross basis before *tax*, since the pre-tax interest rates reflect what reporting agents pay on deposits and receive for loans;
- do not take into account *subsidies* granted to households or non-financial corporations by *third* parties such as government, because these subsidies are not paid or received by the reporting agent. These subsidies can be received either directly by the households or non-financial corporations or, indirectly, through the reporting agent;
- reflect *favourable rates* that reporting agents apply to their employees. Favourable rates do not include a subsidy granted by a third party but are actually applied by the reporting agent.

Therefore, in the case of *deposits*, MFI interest rate statistics capture what the MFI pays but not what the household or non-financial corporation receives in terms of interest payments. For example, if a customer receives 5% p.a. on a deposit where 3% is actually paid by the reporting agent and the other 2% is a subsidy by a third party, which is transferred to the customer via the reporting agent, then the 3% p.a. is covered by MFI interest rate statistics. Further examples are given in Figure 1. The deposit interest rates covered by MFI interest rate statistics are shaded, i.e. the 3% on the deposits of customers 1, 2 and 3 and the 5% for the employee.

⁴⁰ See also paragraphs 4 to 8 of Annex I to the Regulation.

Figure 1

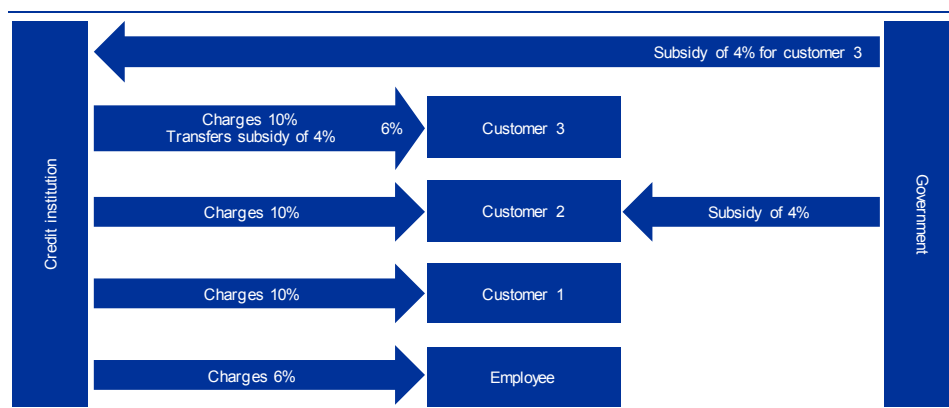
Subsidies and favourable rates on deposits



Analogously, in the case of *loans*, MFI interest rate statistics capture what the MFI charges in terms of interest rates but not what the household or non-financial corporation pays. For example, if a customer pays 6% p.a. for a loan where 10% is actually charged by the reporting agent but a third party deducts a 4% subsidy from this interest rate, and this is transferred to the customer via the reporting agent, the 10% p.a. is covered by MFI interest rate statistics. Further examples are given in Figure 2. The lending interest rates reflected in MFI interest rate statistics are shaded, i.e. the 10% for the loans of customers 1, 2 and 3 and the 6% for the loan of the employee.

Figure 2

Subsidies and favourable rates on loans



It should be stressed that as the MFI perspective is the relevant one to determine the interest rates that have to be recorded in MFI interest rate statistics, any subsidy received by the MFI that is linked to a favourable interest rate applied to the household or non-financial corporation should be considered as a subsidy to correctly compute MFI interest rate statistics. The following example aims at clarifying further this issue.

Question:

In order to foster growth in credit to small and medium-sized enterprises (SMEs), in particular because this type of enterprise was especially affected by the global financial crisis, the NCBs could launch special programmes, through the credit institutions, which would consist of offering new loans to SMEs with an interest rate ceiling significantly below the prevailing market rate for similar loans (let us suppose that the interest rate applied by the credit institution is 2%, whereas the market rate for such loans is 6%). The credit institutions participating in the programme would receive the necessary funds for this particular activity from the NCB through loans at a rate of 0%. Let us suppose that the normal current rate on the credit institutions' funding from the NCB is 4%.

Which interest rate should be recorded in MFI interest rate statistics for these loans to SMEs?

Answer:

The fact that the interest rate charged by the credit institutions participating in the programme is below market conditions means that these loans are subsidised loans. In this case, the SMEs do not receive the subsidy directly but indirectly through the credit institutions. Therefore, the interest rate that has to be computed, in both *new business and outstanding amounts*, is the interest rate that the credit institution actually receives. This is in line with the Regulation which states that, in determining the interest rate of instruments with subsidies, the perspective of the reporting agents is the one that needs to be taken into account.

In the example described above, the credit institutions involved in the special programme receive an interest rate for the loans granted of 2% from the SMEs plus 4% from the NCB for their own financing. Therefore, the interest rate to be computed in MFI interest rate statistics is 6%. Not taking into account the subsidy being granted to the credit institutions for their own financing, at a 0% rate for these types of loans, would artificially bias downwards the interest rates for the non-financial corporation sector as a whole.

At this point, it could be of interest to clarify the wording in paragraph 6 of Annex I to the Regulation: "Furthermore, subsidies granted to households or non-financial corporations by third parties are not to be taken into account when determining the interest payments, because the subsidies are not paid or received by the reporting agent." The paragraph refers to subsidies received directly by households and non-financial corporations. In the case considered in this example, the subsidy is received indirectly by SMEs through the credit institutions.

The case under analysis can be considered in a different "formal" way with the same results. Let us suppose that the credit institutions have to borrow from the NCB at the normal rate of 4%. As the credit institutions want to obtain a margin of 2%, they would grant the loans to the SMEs at 6% ($4\% + 2\%$) and then the government gives a subsidy "directly" to the SMEs of 4%. The result for both the credit institutions and the SMEs is the same but, in this second presentation, paragraph 6 of Annex I of the Regulation can be more directly followed.

Special programmes similar to the programme explained above can be launched by institutions such as the European Investment Fund (EIF), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), etc., under which MFIs are funded at lower interest rates while being under the obligation to extend loans to different groups of economic agents (SMEs, farmers, etc.) at rates lower than what they would be able to get if no such programmes existed. In these cases, the treatment in MFI interest rate statistics is the same as the one explained above. The MFIs have to calculate the amount of the subsidy as the difference between their “normal” funding rate and the lower rate obtained linked to the special programme. The amount of the subsidy plus the rate charged to the customers benefiting from the programme is the rate to be reported for both *new business* and *outstanding amounts*.

4.3.2 Special national practices including regulatory arrangements

Where national *regulatory arrangements* affect interest payments, for example direct subsidies on certain types of instruments or interest rate ceilings, these are reflected in MFI interest rate statistics. Any change to the regulatory arrangements, for example an increase (decrease) in the level of administered interest rates, is shown in the statistics as an increase (decrease) of the respective MFI interest rate.

In addition to national regulatory arrangements, the level and development of MFI interest rates may also be influenced by special national practices that are not legally binding. These can include national conventions, institutional arrangements and specific deposit or lending products offered at national level:

- *National conventions* cover usual banking practices which give rise to lower or higher than usual interest rates, which are not necessarily due to legal acts, for example a general but not legally enforced 0% remuneration on overnight deposits.
- *Institutional arrangements* are similar to national conventions but affect only a specific group of institutions. The legal status of these arrangements is irrelevant for the purpose of analysing the MFI interest rate statistics.
- *Specific national products* may, as a result of their special features, carry unusually high or low interest rates compared with other products falling into the same instrument category. The treatment of some specific products is included in Chapter 8 of this Manual.

4.3.3 The annualised agreed rate formula for subsidised loans

Question:

How should the AAR be calculated for a subsidised loan, where the credit institution receives interest payments from its customer and the subsidy from the government at different frequencies? For example, the credit institution receives 6% interest for a subsidised loan, 4% directly from the customer at a monthly frequency and 2% from

the government. The interest payments by the customer take place monthly, whereas those by the government are made only twice a year. Hence, no single value exists for the variable n in the AAR formula (Equation 1): n would be 12 for the interest paid by the customer and 2 for the interest paid by the government.

Answer:

In this example of a subsidised loan at 6% p.a. where the customer pays 4% p.a. at monthly frequency and the government pays the subsidy of 2% p.a. every six months, the rate recorded in MFI interest rate statistics is 6.1416% calculated as the NDER.

Equation 1 cannot derive this result. This simple formula allows either the use of $n = 12$, which gives 6.17%, assuming that both the customer and government pay monthly or, alternatively, it permits the division of the loan into two parts: one at 4% with $n = 12$ and one at 2% with $n = 2$, leading to 6.08% in total. Both results are incorrect. Equation 1 can be applied as long as there is only one frequency for all the payments, but does not deliver correct results for more complex products. In these cases, NCBs should ask the reporting agents to calculate and report the NDER.

4.4 Annual percentage rate of charge⁴¹

4.4.1 Definition of and link to the Consumer Credit Directive and the Mortgage Credit Directive

The first Consumer Credit Directive was enacted in 1986 with the purpose of setting rules to protect consumers through the harmonisation of terms, information and methodology relating to the main concepts and instruments of credit markets. Twenty years later, an analysis of the national laws transposing the Directive showed that, due to differences in legal or economic situations at national level, in addition to the Directive, the Member States used a variety of consumer protection mechanisms. These differences were creating significant distortions in competition among creditors in the European Union and, in turn, obstacles to the internal market. On these grounds and in response to this evidence, Directive 2008/48/EC⁴² on credit agreements for consumers (hereafter the “Consumer Credit Directive”) was enacted. However, credit agreements covering the granting of credit secured by real estate were excluded from the scope of that Directive, owing to the special nature of this type of credit. Likewise, credit agreements, the purpose of which is to finance the acquisition or retention of property rights in land or in an existing or projected building were also excluded from the Directive. These two types of credit agreements have been regulated more recently, through the Directive 2014/17/EU

⁴¹ See also paragraphs 9 to 11 of Annex I to the Regulation.

⁴² Directive 2008/48/EC of 23 April 2008 on credit agreements for consumers and repealing Council Directive 87/102/EEC (OJ L 133, 22.5.2008, p. 66), as amended by Directive 2011/90/EU of 14 November 2011 (OJ L 296, 15.11.2011, p. 35).

on credit agreements for consumers relating to residential immovable property⁴³ (hereafter the “Mortgage Credit Directive”).

One of the key concepts regulated by both Directives is the *annual percentage rate of charge* (APRC), defined as the total cost of the credit to the consumer expressed as an annual percentage of the total amount of credit. The APRC equals, on an annual basis, the present value of all drawdowns and the present value of all repayments and charges agreed between the creditor and the consumer, and should be calculated in accordance with a precise mathematical formula, which is represented below as Equation 7.

$$\sum_{k=1}^m \frac{C_k}{(1+X)^{t_k}} = \sum_{l=1}^{m'} \frac{D_l}{(1+X)^{s_l}} \quad [7]$$

where:

- X is the APRC
- m is the number of the last drawdown
- k is the number of a drawdown, thus $1 \leq k \leq m$
- C_k is the amount of drawdown k
- t_k is the interval, expressed in years and fractions of a year, between the date of the first drawdown and the date of each subsequent drawdown, thus, $t_{-1} t_1 = 0$
- m' is the number of the last repayment or payment of charges
- l is the number of a repayment or payment of charges
- D_l is the amount of a repayment or payment of charges
- s_l is the interval expressed in years and fractions of a year, between the date of the first drawdown and the date of each repayment or payment of charges

Remarks:

- (a) The amounts paid by both parties at different times shall not necessarily be equal and shall not necessarily be paid at equal intervals.
- (b) The starting date shall be that of the first drawdown.
- (c) Intervals between dates used in the calculation 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.

⁴³ Directive 2014/17/EU of 4 February 2014 on credit agreements for consumers relating to residential immovable property and amending Directives 2008/48/EC and 2013/36/EU and Regulation (EU) No 1093/2010 (OJ L 60, 28.2.2014, p. 34).

- (d) The result of the calculation shall be expressed with an accuracy of at least one decimal place⁴⁴. If the figure at the following decimal place is greater than or equal to 5, the figure at this particular decimal place shall be increased by one.

On the *costs that have to be included*, the Directives mention expressly the following:

- interest, commissions, taxes and any other kind of fees which the consumer is required to pay in connection with the credit agreement and which are known to the creditor, except for notarial costs;
- costs 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;
- the cost of valuation of property where such valuation is necessary to obtain the credit, but excluding registration fees for the transfer of ownership of the immovable property.

With regard to the *costs excluded*, apart from what has already been mentioned, the Directives also exclude the following:

- charges payable by the consumer for non-compliance with any of his/her commitments laid down in the credit agreement;
- charges other than the purchase price which, in the purchase of goods and services, the consumer is obliged to pay whether the transaction is paid in cash or by credit;
- the costs of maintaining an account recording both payment transactions and drawdowns, the costs of using a means of payment for both payment transactions and drawdowns, and other costs relating to payment transactions included in the total cost of credit to the customer unless the opening of the account is optional and the costs of the account have been clearly and separately shown in the credit agreement.

Even though the scope covered by both Directives is very broad, the following credit agreements are not covered:

- In the Consumer Credit Directive, credit agreements involving a total amount of credits less than EUR 200 or more than EUR 75,000; however, unsecured credit agreements, the purpose of which is the renovation of a residential

⁴⁴ This is a direct quote from the Directives and only included here to illustrate the requirements of the Directives. Paragraph 42 of Part 14 of Annex II to the Guideline of the ECB of 4 April 2014 on monetary and financial statistics (recast) (ECB/2014/15) specifies that “NCBs provide the MFI interest rates on outstanding amounts and on new business to the ECB to four decimal places. This is without prejudice to any decision taken by the NCBs on the level of precision they wish to apply in collecting the data. The published results do not contain more than two decimal places.” Hence it is up to the NCB to define the level of detail at which the reporting agents submit the data to the NCB.

immovable property involving a total amount of credit above EUR 75,000 are covered;

- credit agreements in the form of an overdraft facility and where the credit has to be repaid within one month;
- credit agreements where the credit is granted free of interest and without any other charges and credit agreements under the terms of which the credit has to be repaid within three months and only insignificant charges are payable;
- credit agreements where the credit is granted by an employer to employees as a secondary activity free of interest or at annual percentage rates of charge lower than those prevailing on the market and which are not offered to the public generally.

Both Directives include clauses on *harmonisation* and *sanctions*.

With regard to *harmonisation*, the Directives state that Member States may not maintain or introduce in their national law provisions diverging from those laid down in the Directives, and that Member States shall take the necessary measures to ensure that consumers do not lose the protection granted by the Directives by means of any sort of circumvention. On *sanctions*, both Directives state that Member States shall lay down the rules on sanctions applicable to infringements of the national provisions adopted pursuant to the Directives and shall take all measures necessary to ensure that they are implemented. The sanctions shall be effective, proportionate and dissuasive.

Finally, on *transposition*, the Consumer Credit Directive established 12 May 2010 as the deadline for transposition, while the Mortgage Credit Directive established 21 March 2016 as the deadline.

Regarding the MFI interest rate statistics, although significant charges might be applied in all lending categories, the Regulation requires the compilation of an APRC only for loans to households for consumption and for house purchases (indicators 30 and 31 of Table 5 in the Appendix).

4.4.2 Indicator for other loan charges

In general, MFIs pay interest on deposits to their customers but also charge fees. Analogously, MFIs usually receive payments for the loans granted from their customers comprising an interest rate component and a component of other related charges. Both components may have an impact on the monetary transmission mechanism.

The AARs and the NDERs collected for the purpose of MFI interest rate statistics provide extensive information about the interest paid on deposits and charged for loans by MFIs. The APRCs collected for consumer credit and loans to households for house purchases incorporate indistinguishably information about the interest rate and related fees charged by the same institutions. Hence, the APRC can change

from one month to another as a result of changes in the interest rate component or the component of other charges or both.

Since there are no methodological differences between the AAR and the NDER, on the one hand, and the APRC, on the other, the APRC should not be lower than the AAR (or the NDER) because the APRC includes charges in addition to the interest rate. The mathematical difference between the APRC and the AAR (or the NDER) therefore represents the component of other charges applied to loans. Indeed, the main aim of collecting the APRC for the purpose of MFI interest rate statistics is to construct an indicator of *other loan charges* applied to loans to households for consumption and for house purchases, which allows the monitoring of developments in loan charges over time.

Significant charges might be applied in all lending categories. However, in order to limit the reporting burden on MFIs, the Regulation requires no information related to charges for revolving loans and overdrafts, extended credit card credit, loans to households for other purposes and loans to non-financial corporations. For deposits, charges are assumed to be less significant than for loans, hence no data are collected.

4.4.3 Charges to be taken into account at national level

Question:

The transposition of the Consumer Credit Directive and the Mortgage Credit Directive into national law may require the calculation of the APRC with respect to loans to households for house purchases based on assumptions that are not identical to those in the Directives. In particular, the national legislation in one Member State requires the exclusion of mortgage protection insurance as a relevant charge from the APRC. In this Member State, mortgage protection insurance is compulsory for the vast majority of housing loans. However, the MFIs do not always know the amount of the mortgage protection premium applicable to the individual borrower, as the insurance policy may be arranged through an insurance intermediary other than the lender. Accordingly, under national law the costs of such insurance are not included in the APRC for housing loans. Should the national definition of the APRC be followed in this case for the purpose of MFI interest rate statistics?

Answer:

Paragraph 11 of Annex I to the Regulation acknowledges that the composition of the fees to be taken into account in the APRC may differ across countries, because the Consumer Credit Directive is differently applied and because national financial systems and the procedure for securing credits differ. Nevertheless, it is expected that the clauses for harmonisation that the Consumer Credit Directive contains and the fact that the date for its transposition into national legislation was 12 May 2010 will have reduced the differences in the application of the APRC across countries. But as the Mortgage Credit Directive had to be transposed by 21 March 2016, it is very probable that for credit agreements for consumers relating to residential

immovable property, such differences are still significant. Hence, if national legislation on the APRC provides that mortgage protection insurance should not be considered as a relevant charge in the calculation of the APRC, the reporting agents in that Member State may exclude such mortgage protection from the calculation of the MFI interest rate statistics.

4.4.4 Period of fixation in the calculation of the APRC

Question:

The current national law in a Member State may require the calculation of the APRC with respect to loans to households for house purchases based on assumptions that are not identical with those in the Mortgage Credit Directive. In particular, in one Member State the legislator took the view that undue emphasis should not be placed on the initial interest rate, which applies only for a short period relative to the full term of the loan. Therefore, the national legislation requires the calculation of the APRC based on the assumption that the fixed interest rate at the beginning of the contract applies only for the period specified and that the interest rates applicable to other periods of the contract are the current variable rates. Should the national definition of the APRC be followed in this case for the purpose of MFI interest rate statistics?

Answer:

The initial period of fixation is discussed in detail in Section 7.7.4. In general, MFI interest rates on new business only reflect the interest rate that is agreed for the initial period of fixation at the start of the contract or after renegotiations of the loan. If, after this initial period of fixation, the interest rate automatically changes to a variable interest rate, which might be at a very different level, this is not reflected in new business statistics but in the statistics on outstanding amounts. For example, if a ten-year loan is granted where it is agreed at time t_0 that for the first 12 months the interest is fixed at 10% and then automatically adjusted to EURIBOR plus x basis points, then the MFI interest rate on new business captures the 10%. The changes in the interest rate over time, i.e. the change from 10% to EURIBOR plus x basis points and then the movements of EURIBOR over time, are only captured in the MFI interest rates on outstanding amounts.

In general, this approach should be followed for all contracts with initial rate fixation. However, if according to the national legislation the calculation of the APRC warrants a different treatment for certain products with initial rate fixation, then the same treatment should also be applied for *these products* to calculate the interest rate without charges. The reason for using the same method of calculation for the interest rate with and without charges is that the difference between them should serve as an indicator for loan charges as discussed in Section 4.4.2. In this example, the national legislation requires that the APRC for loans to households for house purchases should be based on the assumption that the fixed rate applies for only the period specified and that the interest rates applicable to other periods of the contract are the current variable rates. If the reporting agents follow this approach for calculating the APRC for the purpose of MFI interest rate statistics, this is reflected in the new business indicator 31 of Table 5 in the Appendix referring to loans to households for

house purchases. The difference between indicator 31 and the interest rate for loans to households for house purchases without charges, i.e. the weighted average of new business indicators 16 to 19 in Table 2, should only be the charges. Hence, the assumption for the initial fixed rate that is applied to indicator 31 also needs to be applied for new business indicators 16 to 19 referring to loans to households for house purchases with a variable rate and up to one year initial rate fixation, over one and up to five years initial rate fixation, over five and up to ten years initial rate fixation, and over ten years initial rate fixation. As a consequence, the NDER needs to be compiled for new business indicators 16 to 19 in this Member State, because the AAR could only take into account the fixed rate at the beginning of the contract.

The alternative is that the MFIs ignore the national legislation regarding the APRC and report *for the purpose of MFI interest rate statistics* the fixed rate including charges as the APRC and the fixed rate without charges as the AAR.

4.4.5 Treatment of subsidies in the APRC

Question:

The transposition of the Consumer Credit Directive and the Mortgage Credit Directive into national law may require that the APRC reflects the total costs for a loan from the *point of view of the customer*. For example, a credit institution grants a loan at 10% p.a., where the customer pays 6% and the government transfers the remaining 4% as a subsidy directly to the MFI. In this case, the APRC calculated according to national legislation would reflect the 6% p.a. paid by the customer plus any charges. Should the national definition of the APRC be followed in this case for the purpose of MFI interest rate statistics?

Answer:

The treatment of subsidies is discussed in detail in Section 4.3. In general, MFI interest rate statistics take the *point of view of the reporting agent* and not of the customer. This means that in the above example, MFI interest rate statistics would reflect what the MFI charges in terms of interest rate, i.e. the 10%, but not the 6% interest that the customer pays.

As explained in Section 4.4.2, there should be no methodological differences between the APRC and the AAR (or the NDER). The APRC should not be lower than the AAR (or the NDER) and the difference between them should be solely attributable to the existence of other charges applied to loans. It is therefore essential that subsidies are treated in the same way in the AAR (or the NDER) and the APRC, as otherwise the indicator of other loan charges cannot be interpreted.⁴⁵ As a consequence, when calculating the APRC *for the purpose of MFI interest rate statistics* the point of view of the reporting agent needs to be taken and the national legislation regarding the treatment of subsidies ignored. Therefore, in the above example, both the AAR (or the NDER) and the APRC need to reflect the 10% interest rate that is charged by the MFI.

⁴⁵ This is analogous to the argumentation for the treatment of the initial rate fixation in Section 4.4.4.

In theory, it would also be possible to apply in this Member State, for all types of rates, the treatment of subsidies as specified in the national legislation, i.e. to take the point of view of the consumer. However, this would not be in line with paragraph 4 of Annex I to the Regulation and would moreover compromise the comparability of MFI interest rate statistics across the euro area.

4.4.6 Treatment of non-profit institutions serving households in the APRC

As deposits from and loans to non-profit institutions serving households (NPISHs) are usually quantitatively less important than deposits from and loans to households and non-financial corporations, the household sector includes NPISHs for the purpose of MFI interest rate statistics in general.⁴⁶ However, for the APRC on loans to households for consumption and for house purchases, (indicators 30 and 31 in Table 5 of the Appendix) NCBs may grant a derogation to reporting agents regarding such loans to NPISHs.⁴⁷ The reason is that certain loans to NPISHs may not be covered by the national legislation referring to the calculation of the APRC. It is expected that loans to NPISHs for consumption or house purchase are negligible. If they were not to be negligible, however, the exclusion of loans to NPISHs from the APRC for consumer credit and loans to households for house purchases and their inclusion in the AAR or the NDER would lead to a distortion of the indicator for other loan charges.⁴⁸

Question:

If an NCB grants the derogation to its reporting agents, this implies that all loans to NPISHs are excluded from the calculation of the APRC. Therefore, the APRC does not cover the interest rates on new loans for consumption and new loans for house purchases granted to NPISHs. The question is whether, in the calculation of the APRC, NCBs should also exclude the *amount* of new loans granted to NPISHs?

Answer:

In order to calculate the APRC as a weighted average rate, the Regulation assumes that it is possible to use the new business volumes that are provided for the calculation of the AAR (or the NDER).⁴⁹ However, these new business volumes include the amount of new business in respect of loans to households *and* NPISHs, whereas if the derogation is applied, the weighted interest rate to be calculated refers only to households, i.e. excluding NPISHs. Hence, if the derogation is applied, reporting agents and NCBs require additional data to calculate the APRC.

As the reporting agents apply the derogation, it can be assumed that they are in a position to distinguish between households and NPISHs. Therefore, NCBs should ask reporting agents to calculate the APRC with weights covering only households, i.e. excluding NPISHs, and to supply the NCB with additional series for the *amount*

⁴⁶ See also Chapter 3 and Section 7.4.

⁴⁷ See footnote 1 to paragraph 9 of Annex I to the Regulation.

⁴⁸ See also Section 4.4.2.

⁴⁹ Further discussed in Sections 9.3 and 9.4.

of such loans to households. The additional series on the amount of loans to households for consumption excluding NPISHs, i.e. indicator 30, and loans to households for house purchases excluding NPISHs, i.e. indicator 31, need to be transmitted to the ECB. The amounts might not be significant but this is not necessarily known for certain in advance.

5 Business coverage⁵⁰

5.1 Bad loans and loans for debt restructuring below market conditions

Interest rates on bad loans and on loans for debt restructuring below market conditions are not collected for the purpose of MFI interest rate statistics. The reason is that the interest rate agreed on a loan for debt restructuring is not the result of the general demand and supply conditions in the loan market at the time of the agreement, but rather of what the indebted customer is able to pay and the agreement that the customer is able to reach with creditor MFIs. Hence, interest rates on loans for debt restructuring at rates below market conditions are, like other bad loans, not the type of interest rate that is supposed to be covered as an agreed rate by MFI interest rate statistics.

Bad loans are defined in accordance with Annex II to Regulation (EU) No 1071/2013 (ECB/2013/33) which, in turn, relates to Article 178 of Regulation (EU) No 575/2013.⁵¹ As for loans for debt restructuring, i.e. restructuring in relation to financially distressed debtors, they should be defined in accordance with existing national definitions.

A key question that would have to be clarified is when an interest rate applied to a loan can be considered to be *below market conditions*. It would be desirable to set precise rules to try to harmonise this concept across countries; however, the differences that still exist in the financial systems of the Member States and in the level of retail interest rates, exacerbated by the economic and financial crisis, make it very difficult to arrive at a harmonised position on this issue. Therefore, at the moment, it seems more convenient to leave the assessment of when to qualify the rate applied to loans as below market conditions to the reporting agents, as this concept varies depending on the conditions prevailing in the different national markets, the different instruments and even the different kinds of customers. Undoubtedly, the reporting agents are in the best position to assess whether they have given special treatment to a customer in terms of the interest rate applied to a loan and the reasons for that. As not all the loans granted at interest rates below market conditions have to be excluded from MFI interest rate statistics, only those for the purpose of debt restructuring and also all bad loans, the reporting agents know exactly if a loan is classified as a bad loan and if a loan to which they are applying the lower than usual interest rate corresponds to restructured debt.

Another aspect that should be clarified is that although the *interest rates* on bad loans and loans for debt restructuring below market conditions are excluded from

⁵⁰ This chapter refers mainly to Part 2 of Annex I to the Regulation.

⁵¹ Regulation (EU) No 575/2013 of the European Parliament and of the Council of 27 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (OJ L 176, 26.6.2013, p. 1).

MFI interest rate statistics, their *amounts* are included in the weighting information used for aggregating MFI interest rates on outstanding amounts at the national and euro area levels. This exception aims to alleviate the burden on MFIs which do not have to report the outstanding amounts of the different instruments to the NCBs for them to calculate the interest rates at national level. Instead, the amounts outstanding are taken from MFI balance sheet statistics. However, the amounts in the balance sheet cover bad loans and loans for debt restructuring, but as these loans enter into the numerator (the weights) and the denominator (the total outstanding amounts), the incurred error is not considered relevant.

5.2 Interest rates on outstanding amounts⁵²

MFI interest rate statistics on outstanding amounts give information about the interest paid and received by households and non-financial corporations, which allows the analysis of any changes in the disposable income of these sectors and their interest burden. From the point of view of the MFIs, the statistics also refer to the interest paid or received, which allows the analysis of changes in interest rate margins and banks' profitability. Interest rates on outstanding amounts are furthermore needed to calculate the own rate of return on M3 and its components. A more exhaustive list of uses is given in Chapter 2.

Outstanding amounts are defined as the stock of all deposits placed by customers, i.e. households and non-financial corporations, with MFIs, and the stock of all loans granted by these MFIs to their customers. An interest rate on outstanding amounts reflects the weighted average⁵³ interest rate level applied to the stock of deposits or loans in the relevant instrument category as at the time reference point:

- Interest rates on outstanding *deposits* cover all deposits placed and not yet withdrawn by customers in all the periods up to and including the reference period.
- Interest rates on outstanding *loans* cover all loans withdrawn and not yet repaid by customers in all the periods up to and including the reference period; this excludes bad loans and loans for debt restructuring at rates below market conditions.

MFI interest rate statistics on outstanding amounts therefore include the interest rates *actually applied* to the stock of all deposits and loans.

⁵² See also paragraphs 14 and 15 of Annex I to the Regulation.

⁵³ Aggregations are discussed in Chapter 9.

5.3 Interest rates on overnight deposits, deposits redeemable at notice, convenience and extended credit card credit, and revolving loans and overdrafts⁵⁴

5.3.1 The balance at the time reference point as an indicator for new business

The general concept of interest rates on outstanding amounts is subject to Section 5.2. Interest rates on new business are explained in Section 5.4. Five instrument categories, i.e. (1) *overnight deposits*, (2) *deposits redeemable at notice*, (3) *revolving loans and overdrafts, convenience and extended credit card credit*, (4) *revolving loans and overdrafts* and (5) *extended credit card credit*,⁵⁵ form a separate group for which the interest rates on outstanding amounts and new business coincide. They are included as new business indicators 1, 5, 6, 7, 12, 23, 32 and 36 in Table 2 of the Appendix and indicators 86 and 87 in Table 8 of the Appendix. The method for compiling these indicators is, however, the same as for interest rates on outstanding amounts. Overnight deposits, deposits redeemable at notice (in particular non-transferable sight savings deposits⁵⁶), revolving loans and overdrafts, and convenience and extended credit card credit form a separate group, because they experience a large number of inflows and outflows throughout the month. The increases and decreases in the amount on these accounts arise from receipts and payments related to the customer's economic activity, and are therefore related to transactions rather than to the autonomous investment decisions of the customer. Moreover, the bulk of these deposits or revolving loans and overdrafts and credit card debt⁵⁷ is usually turned over during the period. The balance at the time reference point⁵⁸ is considered to be the most appropriate indicator for new business:

- For overnight deposits and deposits redeemable at notice, the balance at the time reference point reflects the amount of money the customer has chosen to put into this type of deposit instead of placing the money elsewhere.
- For convenience credit, the balance at the time reference point reflects the amount of money spent from the dedicated card account but not yet repaid in the period between the use of the card and the relevant billing date. Extended credit card credit is the remaining debt on the account after the relevant billing date at the end of the reporting period.

⁵⁴ See also paragraphs 16 to 18 of Annex I to the Regulation.

⁵⁵ All defined in Section 7.5.

⁵⁶ Non-transferable sight savings deposits, which – although legally redeemable on demand – are subject to significant penalties, have features that are very close to overnight deposits and are offered by credit institutions in some Member States. According to Regulation ECB/2013/33, they are classified as deposits redeemable at up to three months' notice.

⁵⁷ Credit card debt, as defined in Part 2 of Annex II to Regulation ECB/2013/33, comprises both convenience and extended credit card credit.

⁵⁸ The time reference point is further discussed in Section 6.1.

- For revolving loans and overdrafts, the balance at the time reference point reflects the amount of money the customer has chosen to draw on a loan facility or to leave as a debit balance on a current or cheque account instead of borrowing the money elsewhere.

By leaving a “net” (debit/credit) balance on the overnight deposit⁵⁹ or deposit redeemable at notice, the customer has implicitly agreed to the terms and conditions of the account. The customer adjusts this balance as part of his/her portfolio management. The balance at the time reference point is, in fact, the outstanding amount at the time reference point, which means, in other words, that the concept of new business is extended to the whole stock in the case of overnight deposits, deposits redeemable at notice, revolving loans and overdrafts, and convenience and extended credit card credit.

In addition to these conceptual considerations, there are also several practical reasons for using the balance at the time reference point as an indicator for new business in this set of instruments. If instead the definition of new business were to be based on increases in the amount on existing deposit or loan accounts, this would lead to a heavy reporting burden on reporting agents due to the large number of inflows and outflows throughout the month. Also, the weight based on all inflows and outflows would overestimate the amount of new business on these accounts.

Analogous to the interest rates on outstanding amounts discussed in Section 5.2, the MFI interest rates for overnight deposits, deposits redeemable at notice, revolving loans and overdrafts, and convenience and extended credit card credit reflect the weighted average interest rate level applied to the stock of deposits or loans in the relevant instrument category as at the time reference point:

- The interest rates for overnight deposits and deposits redeemable at notice cover all amounts placed and not yet withdrawn by customers in all the periods up to and including the reporting date.
- The interest rates on revolving loans and overdrafts, and convenience and extended credit card credit cover all amounts withdrawn and not yet repaid by customers in all the periods up to and including the reporting date.
- The interest rate on convenience credit is not reported separately as it is by definition 0%. The outstanding amount of convenience credit granted is however included in the new business volumes, and correspondingly in the weights, of indicators 86 and 87 in Table 8.

5.3.2 Determining the interest rate on an overnight deposit

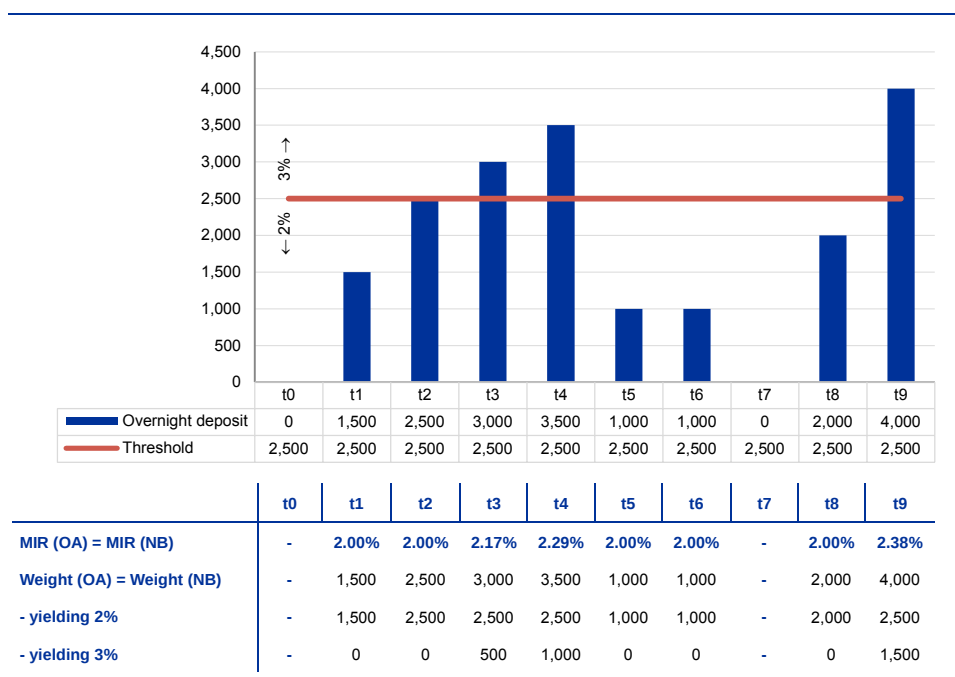
Chart 1 shows an example of an overnight deposit yielding 2% p.a. for an amount up to EUR 2,500 and 3% p.a. for any amount exceeding EUR 2,500. The same figure could also represent a non-transferable sight savings deposit, a revolving loan, an

⁵⁹ The overnight deposit becomes a bank overdraft in the case of a debit balance; see also Section 7.5.2.

overdraft or an extended credit card credit. In the latter three cases, the account would not yield, but would incur interest.

In this Manual, MIR (OA) indicates the MFI interest rate on outstanding amounts and MIR (NB) the MFI interest rate on new business. Weight (OA) and weight (NB) show the weighting information that would be applied to the interest rates on outstanding amounts and new business respectively in aggregations with values for other comparable accounts in this or other reporting agents.⁶⁰ As a result of extending the definition of new business for overnight deposits to the whole stock, the interest rates and weights for new business and outstanding amounts coincide in Chart 1.

Chart 1
Overnight deposit



Each of the periods t_0 to t_9 represent one month. In this example, the MFI interest rates are calculated as a snapshot of end-month observations.⁶¹ Hence, the amount and interest rate observations in Chart 1 are end-month values. For example, at the end of the first month t_1 an amount of EUR 1,500 is available on the overnight deposit yielding 2% interest and, therefore, the MFI interest rate on this account at time t_1 is 2.0%. At time t_3 , EUR 3,000 is available on this deposit, where EUR 2,500 yields 2% and EUR 500 yields 3% interest. Hence, the MFI interest rate for t_3 is calculated as $(0.02 * 2500 + 0.03 * 500) / 3000 = 2.17\%$. At time t_9 , the MFI interest rate is calculated as $(0.02 * 2500 + 0.03 * 1500) / 4000 = 2.38\%$. These interest rates reflect a snapshot of the deposit at the time of data collection. They may of course

⁶⁰ Aggregations are discussed in Chapter 9.

⁶¹ Further discussed in Section 6.1. An alternative calculation based on implicit rates is possible but is not be demonstrated here.

differ from the actual amount of interest earned during the month, the latter being covered by implicit rates.

5.3.3 Combined deposit and loan facilities

Question:

How should the AAR or the NDER be calculated for financial products on accounts that, depending on their balance, can either be a deposit or a loan, such as for example for overnight deposits and overdrafts? Reporting agents do not know in advance whether the account will be a deposit or turn into a loan in the coming period.

Answer:

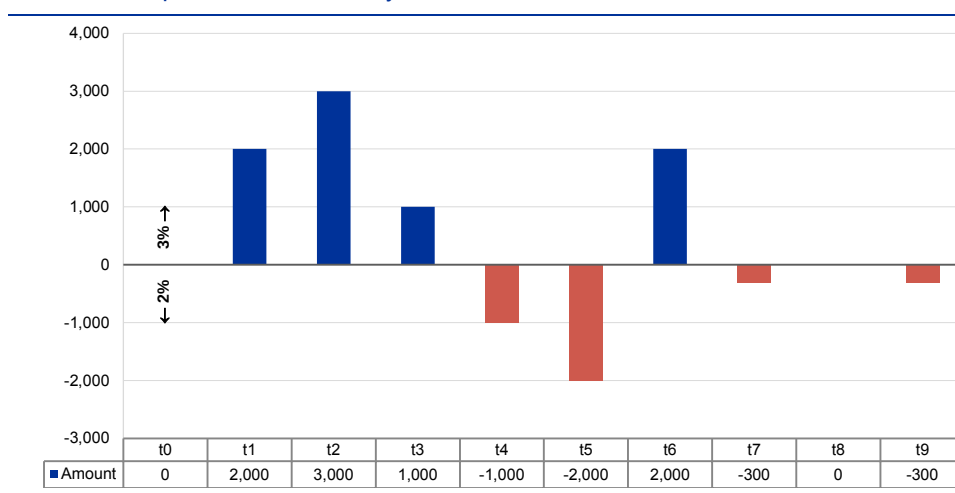
MFI interest rates are determined *ex post*, i.e. for the month prior to the reporting date. To calculate the MFI interest rate for a combined deposit and loan facility, periods where the account was a (positive) overnight deposit have to be distinguished from periods where the account was an (negative) overdraft. For analytical reasons, it would not be appropriate to compute an average interest rate combining (low) overnight deposit rates and (high) overdraft rates. An example for a combined deposit and loan facility is given in Chart 2. For combined deposit and loan facilities, two compilation methods need to be distinguished:⁶²

- If the interest rate is compiled as a *snapshot of end-month observations*, only *one* balance during the month is taken into account to decide whether the account in the reference month is an overnight deposit or an overdraft. This balance is a snapshot at a certain point in time on the last day of the month.
- If the interest rate is calculated as an *implicit rate referring to the average of the month*, for each daily balance the reporting agent needs to assess whether the account is a deposit or a loan. The reporting agent then calculates an average of the daily credit balances and the daily debit balances to derive the average monthly stocks for the denominator of the implicit rate. Also, for the flows in the numerator the accrued interest payable on deposits and receivable on loans needs to be distinguished.

⁶² The time reference point and hence the two compilation procedures are further discussed in Section 6.1.

Chart 2

Combined deposit and loan facility



If in each of the periods t_0 to t_9 represents one *month*, then t_1 , t_2 , t_3 and t_6 are recorded as overnight deposits and t_4 , t_5 , t_7 and t_9 as overdrafts. If each of the periods t_0 to t_9 represents one *day* and t_9 the reporting day, then an overdraft is reported if the method of end-period observations is chosen, because only the situation at the time of data collection is relevant.

5.3.4 Regular savings on a deposit redeemable at notice⁶³

Question:

A deposit redeemable at notice is subject to regular savings of EUR 200 per month for five years. What should be reflected in the statistics on new business and outstanding amounts?

Answer:

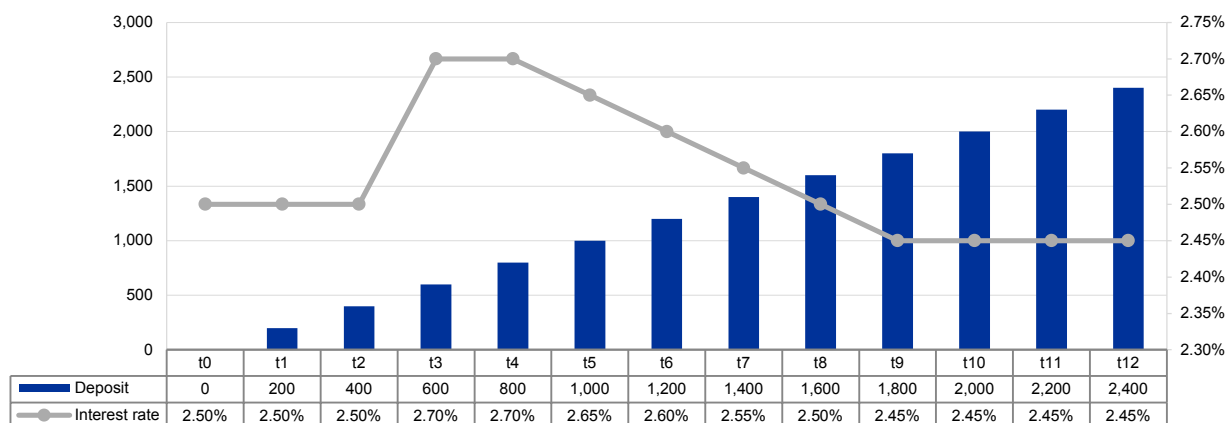
For deposits redeemable at notice, the concept of new business is extended to the whole stock. Hence, the credit balance, i.e. the amount outstanding at the time reference point, is used as an indicator for new business. In this example, the initial savings of EUR 200 and all subsequent savings of EUR 200 are reflected in the amount outstanding on the account and hence in MFI interest rate statistics. An example for the first year is given in Chart 3.

⁶³ See also regular savings on deposits with agreed maturity in Section 5.4.5.

Chart 3

Deposit redeemable at notice

y-axis: Outstanding amount (left-hand scale), Interest rate (right-hand scale)



	t0	t1	t2	t3	t4	t5	t6	t7	t8	t9	t10	t11	t12
MIR (OA) =	-	2.50%	2.50%	2.70%	2.70%	2.65%	2.60%	2.55%	2.50%	2.45%	2.45%	2.45%	2.45%
MIR (NB)													
Weight (OA) =	-	200	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400
Weight (NB)													

5.4 Interest rates on new business in instrument categories other than overnight deposits, deposits redeemable at notice, revolving loans and overdrafts, and convenience and extended credit card credit⁶⁴

5.4.1 Definition of new business

MFI interest rate statistics on new business are statistics on the interest rates agreed in new agreements. They reflect the demand and supply conditions in the deposit and loan markets at the time of the agreement, including competition with other types of financial institution and product. These statistics are needed to analyse the pass-through of changes in official rates and market interest rates to lending and deposit interest rates faced by households and non-financial corporations. They provide information about the cost of capital and the cost spread between self-financing and credit. MFI interest rates on new business allow the study of prices and quantities together which helps for example to explain portfolio shifts. They also show how quickly banks' interest rate margins react to external developments.

⁶⁴ See also paragraphs 19 to 27 of Annex I to the Regulation.

New business in these instrument categories is defined as any new agreement between the customer and the MFI. *New agreements* are:

- all financial contracts, terms and conditions that specify for the *first* time the interest rate of the deposit or loan, and
- all renegotiations of existing deposit and loan contracts.⁶⁵

For this definition of new business, the expression *terms and conditions* needs to be specified since it appears many times in the Manual as a key element. The *terms and conditions of a loan or deposit contract* consist of the agreed interest rate or the spread over a relevant reference rate, the size of the loan or the deposit, the access conditions, and other terms and conditions in the form of non-interest rate charges (e.g. fees), collateral or guarantees which the customer of an MFI needs to provide (including compensation balances), loan or deposit covenants and the agreed maturity.

An interest rate on new business reflects the weighted average⁶⁶ interest rate level that has been agreed for all new deposits or loans in the relevant instrument category during the reference month. Interest rates on new business cover all new agreements made during the whole month irrespective of the point in time a deposit is placed or a loan is withdrawn⁶⁷. MFI interest rate statistics on new business are distinct from MFI interest rate statistics on outstanding amounts in that, as explained in Section 5.2, the latter reflect the interest rates actually applied to the stock of deposits and loans. In an extreme case, an interest rate laid down in a new agreement may never actually be applied to any deposit or loan. For example, a customer and a credit institution might agree on an interest rate for a certain amount of money, but the customer might in the end choose not to place any deposit with this institution or decide not to withdraw any of the money granted as a loan. As a consequence, both the agreed interest rate and the amount would be reflected in the MFI interest rate statistics on new business at the time of agreement, but never appear in the MFI interest rate statistics on outstanding amounts.

5.4.2 Definition of renegotiation⁶⁸

As defined in paragraph 21 of Annex I to the Regulation, *renegotiation* refers to the active involvement of the household or non-financial corporation in adjusting the terms and conditions of an existing loan or deposit contract, including the interest rate. Prolongations of existing contracts that occur *automatically*, i.e. without any active involvement of the customer, and do not involve any renegotiation of the terms and conditions of the contract, including the interest rate, are *not* new business.

⁶⁵ The definition of renegotiations is included in Section 5.4.2.

⁶⁶ Aggregations are discussed in Chapter 9.

⁶⁷ Further discussed in Section 6.2.

⁶⁸ Renegotiated loans are further discussed in Section 5.5.

The Regulation requires the compilation of the amounts of renegotiated loans separately from the new business amounts for the instrument categories included in Table 6 of the Appendix. The purpose is to have a measure of “pure new loans” in the sense of gross “fresh money” arriving on the credit market, distinguishing these from renegotiated loans where, by definition, no new money is arriving on the credit market.

For this definition of renegotiation, it should be clarified that contract changes that have an impact on the terms and conditions (e.g. the maturity or amount granted) are considered renegotiations, and not only changes in interest rates. However, changes in formal elements of the contract, such as the address of the credit institution or that of the customer, must not be considered as renegotiations.

An additional aspect to be clarified is the expression “active involvement”; that is to say, how active does the involvement of the customer have to be to consider a change in the prevailing conditions of a loan or a deposit a renegotiation? Let us consider the case of a deposit contract which stipulates that, at maturity, the deposit will be renewed automatically with the same terms and conditions as the previous ones unless the customer or the bank decides not to renew the deposit or decides to change the terms. In one of these renewal periods, the bank informs the customer about its willingness to renew the deposit but at a different interest rate and gives the customer a period in which to cancel the deposit in case of disagreement. The customer does not respond and the bank applies the new conditions. Then, the question is: could the passive consent of the customer be considered as active involvement so that this change in the conditions of the deposit is recorded as a renegotiation? The question is very relevant, because as the conditions of the deposit have changed and these new conditions were not agreed beforehand when the contract was signed, a new business operation has to be recorded, but there is no new money coming onto the deposit market. This operation seems to be a renegotiation, but the active involvement of the customer could be called into question. The answer to this case is that **tacit agreement** by the customer by not opposing the new proposal of the bank is, in fact, an active involvement because the customer could have opted for other alternatives; therefore, new business and a renegotiation should be recorded in MFI interest rate statistics.

It needs to be clarified, however, that tacit agreements should be reported as renegotiations only if contract changes have an impact on the contract's terms and conditions (e.g. the interest rate or the maturity). Therefore, changes in formal elements of the contract, such as the address of the credit institution or that of the customer, must not be considered as renegotiations.

5.4.3 New business on deposits with agreed maturity

For most deposits with agreed maturity, i.e. classic time deposits where a fixed sum is placed for a predefined period of time, new business only arises when a new account is opened for the first time, at which point the deposit amount and the interest rate are agreed. *Normally*, for deposits with agreed maturity no further new

business occurs until maturity. An exception to this rule is discussed in Section 5.4.5. The treatment of maturing deposits is subject to Section 5.4.4.

Chart 4 illustrates the calculation of MFI interest rates on outstanding amounts and new business in an example involving three *separate* deposits with agreed maturity:

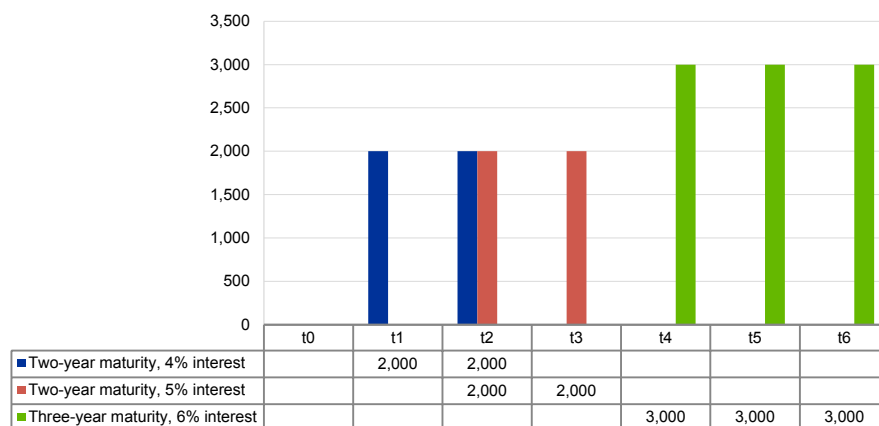
1. at time t_1 EUR 2,000 is placed at 4% p.a. with an agreed maturity of two years;
2. at time t_2 EUR 2,000 is deposited at 5% p.a. also with an agreed maturity of two years; and
3. at time t_4 EUR 3,000 is paid in at 6% p.a. with an agreed maturity of three years.

In this example, at time t_1 , an amount of EUR 2,000 is placed as a new deposit. At that time, the MFI interest rate on new business MIR (NB) and on outstanding amounts MIR (OA) is 4.0%, which is indicated in Chart 4. At time t_2 , EUR 2,000 is still in the first deposit yielding 4% and EUR 2,000 is newly paid into the second deposit yielding 5%. Hence, at time t_2 the MFI interest rate on outstanding amounts comprising both deposits is calculated as $(0.04 * 2000 + 0.05 * 2000) / 4000 = 0.045 = 4.5\%$, while the MFI interest rate on new business at time t_2 is 5% referring solely to the new second deposit. At time t_3 , the first deposit of EUR 2,000 reached maturity; therefore, there is an outstanding amount of EUR 2,000 referring to the second deposit yielding 5%. At that time, there is no new business. At time t_4 , the second deposit of EUR 2,000 reached maturity and EUR 3,000 is newly paid into the third deposit yielding 6%. Hence, at that time, the MIR (NB) and the MIR (OA) is 6%. At t_5 and t_6 , there is no new business to be reported and EUR 3,000 is to be reported for outstanding amounts referring to the third deposit yielding 6%, as indicated in Chart 4.

Chart 4

Deposit with agreed maturity

(y-axis: Outstanding amount)



	t0	t1	t2	t3	t4	t5	t6
MIR (OA)	-	4.00%	4.50%	5.00%	6.00%	6.00%	6.00%
Weight (OA)	-	2,000	4,000	2,000	3,000	3,000	3,000
MIR (NB)	-	4.00%	5.00%	-	6.00%	-	-
Weight (NB)	-	2,000	2,000	-	3,000	-	-

5.4.4 Matured deposit with agreed maturity

Question:

A customer's deposit with agreed maturity matures. Following the standard procedure, the reporting agent informs the customer and credits the corresponding amount to another account of the customer, or alternatively, the customer could have two other options, both stipulated in the contract.

Option 1: cancel the deposit and inform the credit institution that he or she wants to make a new deposit with similar or different terms and conditions than the matured deposit, or

Option 2: do nothing, in which case the credit institution, as stipulated in the contract, will automatically renew the deposit on identical terms.

Would options 1 and 2 constitute new business?

Answer:

The task is to distinguish between new business and an (automatic) prolongation of an existing contract. The key issue is the *active involvement* of the customer and the alternatives laid down in the existing contract for when the deposit reaches maturity: an (automatic) prolongation without the active involvement of the customer is not new business, whereas a prolongation with active involvement of the customer is new business.

Option 1 is new business because the customer is involved in renegotiations with the credit institution. Whether the new deposit is on terms and conditions similar or even identical to the old deposit or on new terms and conditions is irrelevant for determining whether there is new business.

Option 2 is not new business because the automatic renewal of the deposit was laid down in the existing contract in the event that the customer did not take any action.

In general, the contract for a deposit with agreed maturity defines what happens with the money after maturity, if it is not withdrawn. For example, the contract might determine that the deposit is originally placed for one year at EURIBOR plus 50 basis points. If the funds are not withdrawn at maturity, then they are reinvested at the same terms, i.e. at EURIBOR plus 50 basis points. In this case, if the customer says nothing, it is not new business but an (automatic) prolongation of the contract. If the customer decides to change the external index or the spread, the customer is actively involved and the reinvestment constitutes a renegotiation and, as a consequence, it is new business.

It is also possible that the customer on placing a deposit with one-month maturity instructs the credit institution to *roll over* the account each month provided the terms and conditions remain unchanged from one month to the next. The customer stipulates that he or she wishes to be notified if there is a change in the terms and conditions attached to the account. The automatic rolling over is not new business. However, if the terms and conditions change, and the customer is contacted and engages in new negotiations, this is recorded as new business, irrespective of whether the negotiations result in the old or new terms and conditions. If the credit institution informs the customer about the new terms and conditions of the deposit, giving him or her a period to object, and the customer does not respond, this tacit agreement is considered new business and a renegotiation.

When the terms and conditions of a maturing deposit with agreed maturity are renegotiated and, as a consequence, the deposit is classified as new business, the maturity of that (new) deposit is counted as commencing at the point of the *new business* classification.

5.4.5 Regular savings on a deposit with agreed maturity⁶⁹

Question:

A company savings plan is linked to a deposit with agreed maturity. In the contract it is agreed that the company makes regular monthly deposits of EUR 2,000 for a period of two years. The first payment is made a few weeks after the contract date.

1. What is to be considered as new business, the first deposit of EUR 2,000 or all payments during the lifetime of the contract?

⁶⁹ See also regular savings on deposits redeemable at notice in Section 5.3.4.

2. What is to be considered as the starting date, the contract date (in which case there has not yet been a payment and there is no new business amount) or the first payment date?

Answer:

Ceteris paribus an MFI will offer a different interest rate on a deposit that is:

- progressively increasing over time from EUR 2,000 in t_0 to EUR 48,000 in t_{24} ,
- fixed at EUR 2,000 for two years, and
- fixed at EUR 48,000 for two years.

The company's regular monthly savings in this example lead to a progressive increase in the outstanding amount on the deposit with agreed maturity. This increase is reflected month after month in the MFI interest rate statistics on *outstanding amounts*. By contrast, the MFI interest rate statistics on *new business* capture the deposit only once at the time of agreement. Hence, the new business statistics can either mirror the initially placed EUR 2,000 or the maximum amount of EUR 48,000, but cannot reflect the progressive increase of the amount on the deposit. The treatment of regular savings on deposits with agreed maturity in new business statistics cannot be defined in general, but depends on the agreements laid down in the individual contract:

Case 1: The customer and the MFI agree that EUR 2,000 has to be placed each month on the account until maturity. The customer's obligation can be enforced by the MFI in such a way that it is sure *ex ante* that at time t_{24} EUR 48,000 will be accumulated on the account. In this case, the full amount of EUR 48,000 is reflected as new business in MFI interest rate statistics at the time of agreement on the contract. Most likely the level of the interest is linked to the commitment on the part of the customer. For variable interest rates, the value of the rate is determined *at the time of the agreement*.⁷⁰

Case 2: The customer and the MFI agree on a flexible savings plan, which states that EUR 2,000 should be placed each month on the deposit until maturity. The payments can be lower or higher with (or without) a targeted maximum saving of EUR 48,000 at time t_{24} . In this case, the amount accumulated on the account at maturity is certain only *ex post*. Therefore, the MFI reports as new business the amount of EUR 2,000 when it is initially placed. For variable interest rates, the value of the rate is determined *at the time the deposit is placed*.⁷¹

In the absence of any knowledge to the contrary, Case 2 should be assumed, i.e. that the amount accumulated on the account at maturity is certain only *ex post*. Hence the default option is that the EUR 2,000 is reported as new business when it

⁷⁰ This treatment is similar to that of a loan in tranches discussed in Section 5.4.9, where it is also the agreement that determines the amount and the time of recording as new business. However, the difference between the savings plan and the loan in tranches is that for the savings plan the interest rate is linked to the increase in the amount and for the loan to the full amount stated in the contract.

⁷¹ This treatment is similar to that of savings plans for housing loans described in Section 8.4. See also Section 8.1.

is initially placed. In the case of variable interest rates, the value of the rate is determined at the time the deposit is placed.

5.4.6 New lending with a fixed interest rate and with initial rate fixation

Chart 5 shows the example of a loan that is granted for ten years. At time t_0 it is agreed between the customer and the MFI that the interest is fixed at 10% p.a. for the first four years (up to t_3) and that after this initial period of fixation a new interest rate level will be agreed for the remaining maturity of the loan.⁷² This new interest rate might be fixed for another period or variable, but is in any case unknown at time t_0 . As an example, in Chart 5 the result of the renegotiations at time t_4 is a fixed rate of 8% p.a. for the remaining six years of the loan. The MFI interest rate statistics on new business capture at time t_0 the interest rate of 10% agreed for the first four years and at time t_4 the interest rate which is the result of the renegotiations.

Chart 5

Ten-year loan renegotiated after four years

(y-axis: Outstanding amount (left-hand scale); interest rate (right-hand scale))

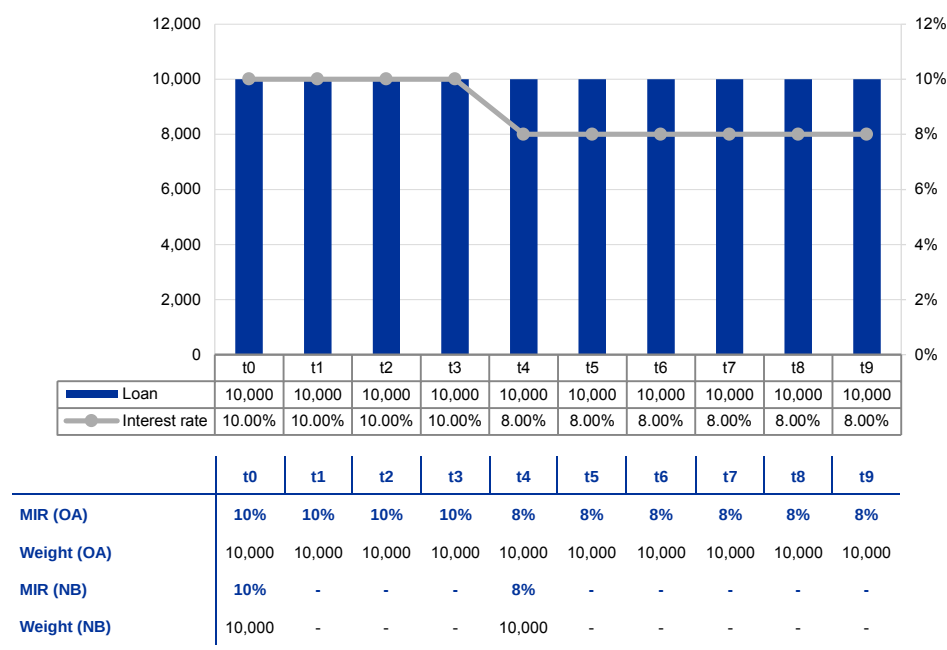


Chart 6 provides another example of a ten-year loan. In this example, at time t_0 the customer and the MFI agree that the interest is fixed at 9% p.a. for the first 12 months, and that after this initial period of fixation the interest rate *automatically*

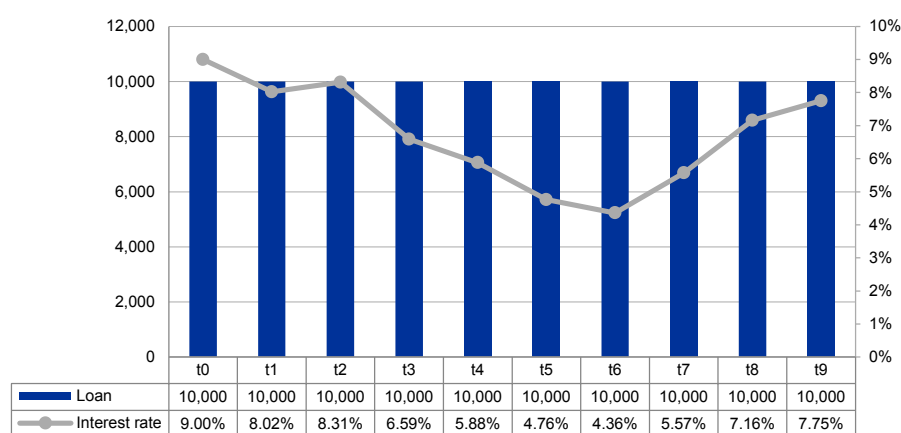
⁷² The original maturity of this loan is ten years with an initial period of fixation of four years. See also Section 7.7.4.

adjusts to EURIBOR plus x basis points.⁷³ This rate is then applied for the next 12 months, after which it will again automatically adjust to EURIBOR plus x basis points. Only the interest rate of 9% for the first year is considered as new business at time t_0 . Neither the switch to variable rates nor the associated automatic adjustments are reflected in the statistics on new business. They are not new agreements but part of the terms and conditions of the loan laid down at time t_0 . In contrast to the previous example, in this example the customer and the MFI agreed on the variability mechanism for the entire maturity of the loan at t_0 , i.e. the day of the signature of the loan contract. A change from fixed to variable interest rates or vice versa during the course of the contract, which has been agreed at the start of the contract (time t_0), is not a new agreement but part of the terms and conditions of the loan laid down at time t_0 . These changes in the interest rate over time are only captured in the MFI interest rates on outstanding amounts.

Chart 6

Ten-year loan with a fixed interest rate for the first year

(y-axis: Outstanding amount left-hand scale)



	T0	t1	t2	t3	t4	t5	t6	t7	t8	t9
MIR (OA)	9.00%	8.02%	8.31%	6.59%	5.88%	4.76%	4.36%	5.57%	7.16%	7.75%
Weight (OA)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
MIR (NB)	9.00%	-	-	-	-	-	-	-	-	-
Weight (NB)	10,000	-	-	-	-	-	-	-	-	-

5.4.7 Top-up loans

Question:

A customer has an outstanding consumer credit of EUR 10,000 at 9% and asks the

⁷³ The original maturity of the loan is ten years with an initial period of fixation of one year. This example is different to the case where the initial period of fixation is *very* short compared with the whole maturity of the loan *and* the interest rate offered during this period is *significantly* below market conditions. See also Section 7.7.4.

MFI to lend a further EUR 5,000. How should this top-up loan be treated in MFI interest rate statistics?

Answer:

If an agreement is reached for the incremental amount, then only this agreement is new business, i.e. the new loan of EUR 5,000. The additional loan could be at the same interest rate of 9% as the outstanding loan of EUR 10,000, but could also be at a higher or lower rate.

If the new operation includes also the previous outstanding amount (EUR 10,000) in such a way that the new terms and conditions affect the whole loan, i.e. the EUR 15,000, then the amount of EUR 15,000 is new business. Also, a renegotiated amount of EUR 10,000 has to be computed. The interest rate on the loan recorded under new business is then the one agreed in the new negotiations between the customer and the MFI, which could be 9% as for the old loan, or higher or lower.

5.4.8 Conversion of an overdraft into another type of loan

Question:

A customer incurred an overdraft of EUR 10,000 on which the interest rate is 15% p.a. In agreement with the MFI, the customer transforms this overdraft into a consumer credit on which the interest rate is 10% p.a. Does the conversion represent new business?

Answer:

The conversion of an overdraft into a consumer credit constitutes new business. It requires a new agreement between the MFI and the customer. Both parties are actively involved in new negotiations. This operation has to be included also as a renegotiation.

5.4.9 Loan taken out in tranches⁷⁴

A household or non-financial corporation is *normally* expected to take out a loan – other than a revolving loan or an overdraft – in full at the start of the contract (time t_0). In some cases, however, it may be agreed that the customer takes out the loan in tranches at times t_1 , t_2 , t_3 , etc. instead of withdrawing the full amount at time t_0 .

Chart 7 shows the first year of a ten-year loan in tranches. In this example, a loan of EUR 10,000 is granted at time t_0 for ten years fixed at 8% p.a. The customer takes out the first tranche of EUR 1,000 at time t_1 and then further tranches of EUR 1,000 in each of the following nine months.

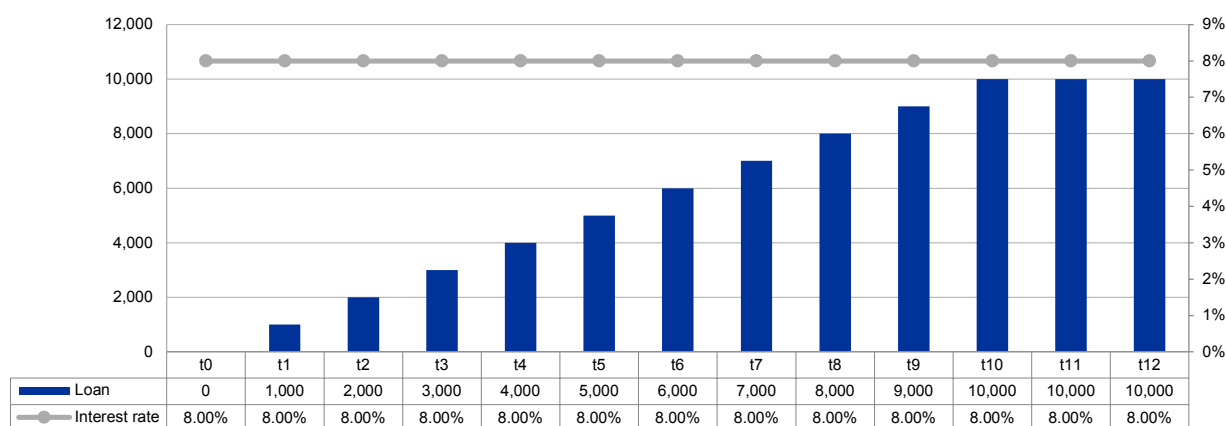
⁷⁴ Loans in tranches that fall into the instrument categories *consumer credit*, *loans to households for house purchases* and *loans to non-financial corporations* are covered. *Revolving loans and overdrafts*, which follow the treatment explained in Section 5.3.1, are not covered. *Umbrella contracts*, which are further discussed in Section 8.3, are also excluded.

A household or non-financial corporation is *normally* expected to take out a loan – other than a revolving loan or an overdraft – in full at the start of the contract (time t_0). In some cases, however, it may be agreed that the customer takes out the loan in tranches at times t_1 , t_2 , t_3 , etc. instead of withdrawing the full amount at time t_0 .

Chart 7 shows the first year of a ten-year loan in tranches. In this example, a loan of EUR 10,000 is granted at time t_0 for ten years fixed at 8% p.a. The customer takes out the first tranche of EUR 1,000 at time t_1 and then further tranches of EUR 1,000 in each of the following nine months.

Chart 7
Loan in tranches

(y-axis: Outstanding amount (left-hand scale); interest rate (right-hand scale))



	t0	t1	t2	t3	t4	t5	t6	t7	t8	t9	t10	t11	t12
MIR (OA)	-	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Weight (OA)	-	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	10,000	10,000
MIR (NB)	8%	-	-	-	-	-	-	-	-	-	-	-	-
Weight (NB)	10,000	-	-	-	-	-	-	-	-	-	-	-	-

For MFI interest rate statistics on *new business*, the fact that the loan is taken out in tranches is irrelevant. These statistics capture the agreement between the customer and the MFI at time t_0 , i.e. the full amount of the loan granted at time t_0 and the interest rate agreed in relation to this full amount. New business is therefore the amount of EUR 10,000 at an interest rate of 8% at time t_0 . For fixed and variable rates, the risk premium included in the interest rate depends on the loan amount and economic conditions. These facts can only be captured consistently by recording the interest rate and the full amount of the loan at time t_0 in MFI interest rates on new business. As explained in Section 5.4.1, MFI interest rate statistics on new business cover agreements, not the actually withdrawn credit.

By contrast, MFI interest rate statistics on *outstanding amounts* cover the actual *withdrawn credit* at any point in time. They reflect the interest rates applied and the

amount of the loan actually outstanding⁷⁵ at the time of data collection, i.e. the interest rate is 8% for an amount of EUR 1,000 at t_1 , 8% for an amount of EUR 2,000 at t_2 , and finally 8% for an amount of EUR 10,000 at t_{10} until maturity. No interest rate on outstanding amounts is recorded at t_0 as no money has yet been withdrawn.

The reporting agents granting the loan in tranches, for example for financing the building of a house, may charge *interest on the amount granted but not yet withdrawn*.⁷⁶ In this example of an agreed lending rate of 8% for the loan in tranches, the credit institution could ask for an additional 3% on the amount it has agreed to lend but the borrower has not yet withdrawn. The 3% is not covered by MFI interest rate statistics, neither as new business nor as outstanding amounts. The 3% is not considered part of the lending interest rate: it is a related charge that might be covered in the APRC according to national conventions, but not in the AAR or the NDER.

5.4.10 The definition of new business for variable interest rates

A rise or fall of a variable interest rate in the sense of an *automatic* adjustment of the interest rate performed by MFIs is not a new agreement and therefore *not* new business. Such changes or movements in variable interest rates over time are not captured by MFI interest rates on new business but by MFI interest rates on outstanding amounts.

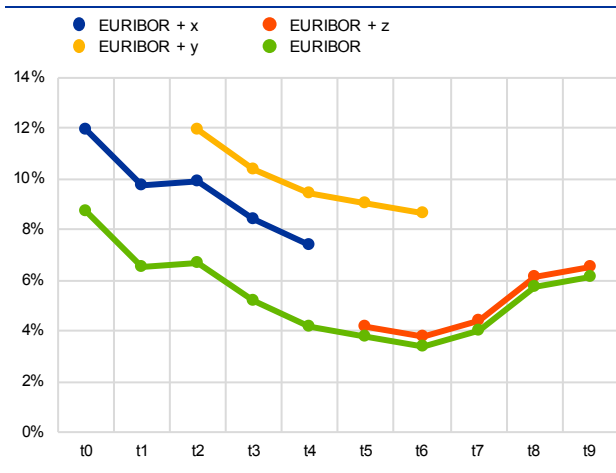
A change from a fixed to a variable interest rate or vice versa during the course of the contract is not a new agreement, if the possibility of such a change is an agreed part of the terms and conditions of the deposit or loan. When the change occurs this is not new business. However, a change from a fixed to a variable interest rate or vice versa *is* new business, if the possibility of the change was not laid down in the initial contract. The change is therefore the result of a renegotiation between the customer and the MFI and constitutes new business and, as it refers to a renegotiation of an existing agreement, it also constitutes a renegotiation and should be reported separately in the case of loans.⁷⁷

MFI interest rate statistics on outstanding amounts and new business lead to different results not only for deposits and loans with initially fixed or fully fixed interest rates, but also for deposits and loans to which fully variable interest rates apply. Since MFI interest rate statistics reflect the interest rates that are actually agreed between the customer and the MFI, interest rates on outstanding amounts and new business only coincide for that part of the interest rate that reflects the external index, i.e. in this example EURIBOR. The spread over this external index might differ across customers but also for the same customer over time.

⁷⁵ Derived from MFI balance sheet statistics.

⁷⁶ In Belgium this is referred to as *commission de non utilisation*, in Germany as *Bereitstellungszinsen*.

⁷⁷ See also Section 5.4.2.

Chart 8**Variable interest rates**

For example, in Chart 8 at time t_0 a four-year loan at EURIBOR plus x basis points is agreed. The creditworthiness of the customer, his or her scope for negotiating the interest rate and market conditions vary over time. Hence, at time t_2 the same customer might only reach agreement on a four-year loan at EURIBOR plus y basis points, but achieve EURIBOR plus z basis points at time t_5 , with $z < x < y$.

Contracts might be agreed between customers and reporting agents that contain very flexible terms and conditions including the level that the variable interest rate may take. In some cases, certain conventions are needed in order to determine the level of the variable interest rate that should be recorded under new business in MFI interest rate statistics. As not all possibilities can be covered in this Manual, the examples in Sections 5.4.11 to 5.4.14 are intended to provide general guidance.

5.4.11 Choice of money market index

Question:

A loan of EUR 10 million is agreed, which is taken out in tranches⁷⁸. The contract specifies that at the time the withdrawals are being made the customer may choose which of the following interest rates applies: one-month, three-month, six-month or 12-month LIBOR plus 50 basis points. According to paragraph 27 of Annex I to the Regulation, this loan in tranches is new business at the time the contract is agreed for the total amount of EUR 10 million. At that time, however, it is unknown which interest rate the customer will choose for the first and each of the following withdrawals. Which interest rate should be reported as new business?

Answer:

For a loan contract that provides the customer with a choice of money market rates as an external index, a convention is needed for determining the value of the *new business* rate. By convention, MFI interest rate statistics on new business record as the value of the variable interest rate either one-month, three-month, six-month or 12-month LIBOR plus 50 basis points, whatever gives the *lowest value* at the time the contract is agreed. The rationale for this convention is that *ceteris paribus* the lowest rate is what the customer would most likely have chosen, if he or she withdrew the whole or a part of the amount on the day of agreement.

For determining the annualised value of the variable rate, it is assumed that the interest rate stays the same for the life of the contract⁷⁹. For example, if at the time of

⁷⁸ See also Section 5.4.9.

⁷⁹ This is in line with Section 4.2.10.

agreement on the contract one-month LIBOR plus 50 basis points is 4% p.a. and as such the lowest interest rate, then the AAR or the NDER is determined based on the 4% and taking into account the frequency of interest rate payments.

The interest rates on *outstanding amounts* reflect the actual interest rate the customer chooses at each withdrawal, the development of the variable rate over time and also the actual amount of the loan which has been withdrawn.

5.4.12 Money market index with a floor and a ceiling

Question:

A customer agrees to place a deposit with an MFI that has an agreed maturity of one year receiving interest of 12-month LIBOR plus 40 basis points with a floor of 2% and a ceiling of 6%. The interest rate floor and ceiling are *not* derivative contracts, which may or may not be exercised by the customer or the MFI as described in paragraph 6 of Part 15 of Annex II to the Guideline. Instead, the floor and ceiling constitute a corridor for the possible interest rates. What interest rate should be reported as new business?

Answer:

The treatment is in principle the same as for any other variable interest rate but taking into account the floor and ceiling for the possible value. Hence, *new business* is the value of 12-month LIBOR plus 40 basis points at the time of agreement on the contract taking into account that the interest rate cannot fall below 2% and cannot exceed 6%. For example, if at the time of agreement 12-month LIBOR is 1.5%, then 2% is recorded under new business, because 1.5 plus 0.4 is below the agreed floor. If at the time of agreement 12-month LIBOR is 4.5%, then 4.5 plus 0.4 = 4.9% is the new business rate. If at the time of agreement 12-month LIBOR is 5.9%, then 6% is captured, because 5.9 plus 0.4 is above the agreed ceiling.

The AAR or the NDER on *outstanding amounts* covers the interest rate applied by the reporting agent at the time of the calculation of MFI interest rates, i.e. it is based on the value of 12-month LIBOR at the time of data collection. The floor and ceiling are taken into account in the same way as for new business.

5.4.13 Change in the value of a currency as an external index

Question:

A customer agrees with an MFI on a deposit with agreed maturity of one year where the interest rate is linked to the percentage change in the value of a currency with a floor of 2% and a ceiling of 6%, i.e. the interest rate is always positive. The percentage change in the value of the currency is not known at the time of agreement t_0 , but only at the time of maturity. What interest rate should be reported as new business?

Answer:

In contrast to the example in Section 5.4.12, where a value can be given for 12-month LIBOR at the time of the agreement on the contract, the percentage change in the price of a currency is only known *ex post* at the time of maturity. Predictions for the value of the currency at maturity could be made to determine a value for the (potential) percentage change of the currency at the time of agreement. However, this is difficult and not consistent with the method for determining the value of a variable rate that is linked to a money market or bond market index, where no predicted future value, but rather the current value of the index at the time of agreement, is used. Hence, the only interest rate that can be included in the statistics on new business is the agreed floor, i.e. 2%, as this is known with certainty by the customer and the reporting agent at time t_0 ⁸⁰.

The AAR or the NDER on outstanding amounts covers the interest rate applied by the reporting agent at the time of the calculation of MFI interest rates. Hence, it is based on the percentage change in the price of the currency at the time of data collection. The agreed floor and ceiling are taken into account in the same way as in Section 5.4.12.

5.4.14 Timing differences

Question:

A customer and an MFI agree on a housing loan with a variable interest rate. The interest rate may be explicitly referenced to an external index, e.g. EURIBOR, or it may be subject to change at the discretion of the lender. As the contractual rate is variable, the value of this rate may vary (within the terms of the contract) at any point from the receipt of the letter of offer through to acceptance or withdrawal of the loan and then during the life of the contract. For contracts with variable rates that have been agreed, but where funds have not yet been withdrawn, some institutions record in their IT system the prevailing rate for that product type rather than the interest rate for the specific contract. It is the view of these institutions that reporting the interest rate for the product type is both more accurate and more efficient as this obviates the need for an additional significant data capture exercise. Furthermore, reporting the interest rate for the product type will allow institutions to provide data on contracts that have been signed by the borrower, but for which the institution has not yet received the completed forms, which are in transit via post, etc.

Answer:

The prevailing rate for the product type and the rate quoted in the individual contract might differ because the customers have different creditworthiness. MFI interest rate statistics on new business cover the actual rate in the individually agreed contract.

⁸⁰ If no floor is agreed and no minimum return is guaranteed, then a convention is needed for determining the level of the interest rate on new business. In this case, by convention the AAR or the NDER on new business captures an interest rate of 0% for the deposit whenever the contract guarantees, at least, the principal of the deposit (i.e. no incurrence of capital losses). If, however, the principal of the deposit is not guaranteed, this operation is not recorded in MFI interest rate statistics. See also Sections 8.9 and 8.10.

The value of the variable rate is determined based on the value of the external index at the time of agreement on the contract. If the customer signs first and then the MFI, agreement is reached when the MFI signs. If the MFI signs first and then the customer, which is unusual, then the contract is accepted when the customer signs. There might be a transmission time for the contract back to the MFI and the new business might therefore be recorded with a delay of some days. As MFI interest rate statistics on new business capture the average interest rate over the month, this delay will only be apparent at the end of the month, in the sense that new business on 30 March might only be recorded on 1 April because of the transmission delay. This is accepted for MFI interest rate statistics.

5.4.15 “Cooling-off” period

Question:

Laws for consumer protection might require a “cooling-off” period, thus necessitating for example a period of at least ten days between the conclusion of the agreement and the withdrawal of the funds. In practice, greater delays can occur. What is the new business?

Answer:

The “cooling-off” period and hence the possibility that a customer steps back from the contract has no influence on MFI interest rate statistics on new business. MFI interest rates on new business reflect the conditions, i.e. the interest rate and the amount of the loan, as laid down in the contract at the time of agreement. The actual day of the withdrawal of the funds is irrelevant for interest rates on new business and is shown only in the statistics on outstanding amounts⁸¹.

5.4.16 Loan offer and preliminary offer

Question:

Before looking for a new house, a customer may have already acquired a loan offer from an MFI. In the loan offer, the MFI promises to grant a loan to the customer at specified, agreed terms in the event that the customer finds a house. The advantage for the customer is that he or she can make a bid for a house without having to consult the credit institution first. The final loan contract is signed once the customer has found the house. In some Member States, lenders must issue preliminary offers before granting loans. The preliminary offer specifies the terms and conditions of the loan, which cannot be changed by the lender if the customer finally agrees them. The offer stands for a given period of time, the length of which is established by national law. During this time, the customer will generally look for competing offers from other lenders. Do loan offers constitute new business?

⁸¹ This treatment is similar to that of the loan in tranches, where it is also the agreement that determines the amount and the time of recording as new business. The withdrawal of the first and all following tranches is reflected only in the statistics on outstanding amounts. See also Section 5.4.9.

Answer:

A loan offer is not new business. People may attempt to buy houses that are worth less than the MFI is willing to accept. In this case, an MFI may either withdraw the offer or lower the amount it is willing to lend. New business therefore only arises when on the basis of the loan offer the final loan contract has formally been signed. Only when the customer signs the legally binding contract does it constitute new business.

5.4.17 Moratorium on a loan

Question:

If a customer temporarily stops the repayments on a loan and starts again sometime later, does the restart constitute new business? Does the treatment depend on whether the bank had started to classify this loan as a bad debt? Does it depend on whether the customer signs a new agreement with the bank?

Answer:

New business occurs only if the customer signs a new agreement. The restart of loan repayments after a moratorium is per se not new business. If the loan is considered a bad loan during the moratorium, it is taken out of the statistics on interest rates on outstanding amounts, but is reincluded when the customer restarts paying the interest⁸².

5.4.18 Documentary credit

A documentary credit, primarily used in international trade, is a commitment made by a bank (the issuing bank) upon the request of an importer that ensures payment to an exporter once the duties of the latter have been fulfilled. The document containing the commitment by the bank serves as a guarantee to the exporter that it will be paid regardless of whether the importer ultimately manages to pay. The bank of the exporter (the advisory bank) may additionally confirm the documentary credit to improve the guarantee.

Question:

Should the documentary credit be recorded in MFI interest rate statistics?

Answer:

A documentary credit is not a credit per se but a guarantee, and therefore, like other types of guarantee, it should not be recorded in MFI interest rate statistics. New business and outstanding amounts should be recorded only when the guarantee is triggered and the corresponding bank (the issuing bank and/or the advisory bank, depending on the terms and conditions agreed for the guarantee) pays the exporter. At this point, the bank will record a loan granted to the importer. The terms and conditions of this new loan, including the interest rate, will have been agreed at the

⁸² See also Section 5.1.

time the documentary credit was signed, but at that moment no loan exists, only a guarantee.

5.5 Renegotiated loans: further issues

As already mentioned in Section 5.4.2, the purpose of collecting the amount of renegotiated loans is to distinguish “pure new loans” in the sense of gross “fresh money” arriving on the credit market from renegotiated loans where no new money is arriving on the credit market. Both types of loans are new business, but a clear distinction needs to be drawn between the two within the MFI interest rate statistics. This distinction is also very important for the users, since the data on pure new loans – calculated as the difference between the total new business volumes and the amount of renegotiations – offer a measure of the gross flow of new credit which serves to assess the MFIs’ credit market stance.

As indicated in Section 5.4.2, the Regulation defines renegotiated loans in paragraph 21 of Annex I. Additionally, paragraphs 22 and 37 of the Annex complement the definition by establishing the following:

“For the separate reporting of new business volumes of renegotiated loans to households and non-financial corporations in MFI interest rate statistics, renegotiated loans comprise all new business loans, other than revolving loans and overdrafts and credit card debt, which have been granted but not yet repaid at the time they are renegotiated.” (paragraph 22)

“All renegotiations of existing deposits and loan contracts should be taken into account, even if the same contract is renegotiated more than once during the reference month.” (paragraph 37)

However, the Guideline states that: “In respect of loans transferred from another institution, renegotiation refers to new business loans that were granted by the institution selling or handing over the loan.” (Annex II, Part 13, paragraph 4)

Notwithstanding all these provisions in the Regulation and Guideline, some issues need to be further clarified, notably renegotiations that take place within a month, renegotiations that include an increase or decrease in the loan amount, renegotiations of loans that are not yet fully drawn (loans taken out in tranches), and loan transfers, sales of loans and reorganisation of loans.

5.5.1 Renegotiations within a month

Question:

A loan of EUR 1,000 was granted on 3 February 2014. This loan was renegotiated on 10 February 2014 and on 17 February 2014. What should be reported in February under new business and under renegotiations?

Answer:

In February this loan was granted for the first time and then renegotiated twice during the same month. As renegotiations are also new business, EUR 3,000 should be reported in February as new business and EUR 2,000 as renegotiations. Therefore, the new money arriving on the credit market in February is EUR 1,000, which is the difference between the gross new business (EUR 3,000) and the amount of renegotiated loans (EUR 2,000).

5.5.2 Renegotiations including an increase in the loan amount and renegotiations involving a partial redemption of the loan

If the renegotiation of a contract involves an increase in the outstanding loan amount, both the agreed amount from the original contract not yet repaid and the renegotiated increase in the loan amount are considered new business, while only the original amount granted and not yet repaid by the time the renegotiation takes place is to be reported under renegotiated loans. If the renegotiation involves or is preceded by a partial redemption of the loan, the amount amortised as a result of the renegotiation is excluded from the amount of both new business and renegotiated loans.

Question:

A loan of EUR 2,000 is granted on 3 February 2014. The loan is renegotiated on 17 February 2014 and an additional amount of EUR 1,000 is granted to the customer. What should be reported in February under new business and under renegotiations?

Answer:

As the original loan (EUR 2,000) and the renegotiated original amount (EUR 2,000) plus the increase in the loan amount (EUR 1,000) are all included in new business, EUR 5,000 is reported as new business for February. The renegotiated original amount of EUR 2,000 is recorded under renegotiated loans. Thus, the new money arriving on the market in February is EUR 3,000.

Question:

A loan of EUR 5,000 is granted on 1 March 2014. An amount of EUR 1,000 is repaid on 31 March 2014. On 15 April 2014 the remaining maturity of the loan is renegotiated and at the same time an amount of EUR 1,000 is repaid. What should be reported in March and April under new business and under renegotiations?

Answer:

Since no renegotiation takes place in March, the whole loan amount of EUR 5,000 reported under new business is new money arriving on the market. In April the loan is renegotiated and the EUR 3,000 granted and not yet repaid is reported under both new business and renegotiated loans.

5.5.3 Renegotiations of loans not yet fully drawn (loans taken out in tranches)

Question:

Let us consider again the example in Section 5.4.9, where a loan of EUR 10,000 is granted at time t_0 (January 2014) for ten years at a fixed rate of 8%. The customer takes out the first tranche of EUR 1,000 in February and then further tranches of EUR 1,000 in each of the following nine months but, before the first tranche is taken, a renegotiation between the MFI and the customer takes place and the interest rate is then fixed at 7.5%. How should this loan be reported in MFI interest rate statistics in January and February?

Answer:

As the contract is signed in January 2014, in this month a new business amount of EUR 10,000 at 8% will be recorded. In February 2014, as a renegotiation takes place, a new business amount will be recorded for EUR 10,000 at 7.5% and the same amount will be recorded also as a renegotiation. In the subsequent nine months, nothing will be recorded either as new business or as a renegotiation. In terms of interest rates on outstanding amounts, the reporting agent will record nothing in January, EUR 1,000 at 7.5% in February, and the same amount and interest rate in the following nine months.

5.5.4 Loan transfers, sales of loans and reorganisation of loans

Several issues have to be considered here.

a) Sales or transfers of loans among MFIs, without the active involvement of the customer

If an MFI sells or transfers loans to another MFI, which happens frequently as a consequence of a corporate restructuring or, in general, as part of companies' strategies, no new business should be reported, as these types of operations are excluded from new business in MFI interest rate statistics and there is no active involvement of the customer. The corresponding interest rates on outstanding amounts are, however, reported.

b) Transfer of loans from one MFI to another, with the active involvement of the debtor

If a household or non-financial corporation decides or agrees to transfer a loan granted to it from one MFI to another, the transfer is reflected in new business as a renegotiated loan, assuming that a negotiation of the terms and conditions of the contract takes place. While the principle is clear, it is acknowledged that, in practice, the new lender might not be aware of the earlier loan in another institution (and hence may not be able to report the loan as a renegotiation). The recommendation of this Manual, in these cases, is that reporting agents should report such renegotiated loans coming from another MFI on a best-efforts basis; nevertheless,

this solution is considered as provisional until the collection of data allows further assessment.

c) Transfer of loans to an MFI from another institution outside the MFI sector

If the loan transferred to an MFI with the agreement of the customer was originated by another institution outside the MFI sector, it is even more difficult for the reporting agents to report the loan as a renegotiation. The provisional recommendation of this Manual is to exclude these operations from renegotiations. Therefore, the MFI receiving the transferred loan should report it as new business and not as a renegotiation. Such recording would be appropriate for the analysis of the credit market stance within the MFI sector, since such a transfer of loans would represent “true loans” coming to the MFI sector. Nevertheless, if the analysis of the credit market stance relates to the whole economy, not recording such operations as renegotiations would be a significant drawback, should the amount of these operations be material.

d) Change of the debtor of a loan

Question:

When a non-financial corporation steps in to replace another non-financial corporation as a debtor and, subsequently, the MFI and the new debtor agree to change some of the conditions of the loan, e.g. the collateral, should this change be reported under renegotiated loans and new business or only under new business?

Answer:

To properly answer this question, it has to be kept in mind that a change in the terms and conditions of the loan has occurred, and that there has been an active involvement of a non-financial corporation (not the original customer, but the one which has taken over the loan). Therefore, this change in the terms and conditions of the loan has to be reported as both new business and a renegotiation.

e) Consolidation and splitting of loans

Loan consolidation in the sense that several loans granted to the same customer are combined into one loan is considered new business, and the combined amounts should be included in renegotiated loans. This applies also to the splitting of existing loans into several separate loans.

f) Currency conversions

Currency conversions of existing loans are considered renegotiations if both the reporting institution and the household or non-financial corporation have to agree on the change in currency. If the conditions for conversion are, however, agreed when the original loan is granted and the conversion takes place automatically, following a pre-specified event, no renegotiation or new business is recorded.

5.5.5 Calculation of the APRC for renegotiated loans

Question:

A household agrees with a bank on a consumer loan being granted with an original maturity of 13 months and a fee of EUR 200 paid in advance. Three months later, the customer and the bank renegotiate the maturity of the loan, shortening it to six months from the date of the original contract. Since this renegotiation is reported as new business, the APRC of this loan has to be reported as well. How should the APRC be calculated in this case?

Answer:

Since the APRC indicates the total cost of a loan paid by a customer, the total fee should be used in the calculation of the APRC of the renegotiated loan to reflect, precisely, the increase in the cost arising from the only element of the loan that has changed, i.e. the term, which is now shorter.

6 Time reference point⁸³

6.1 Time reference point for interest rates on outstanding amounts of overnight deposits, deposits redeemable at notice, revolving loans and overdrafts, and convenience and extended credit card credit⁸⁴

MFI interest rates on outstanding amounts,⁸⁵ i.e. indicators 1 to 26 in Table 1 of the Appendix, may be compiled as a snapshot of end-month observations or as implicit rates referring to the average over the month:

- As a *snapshot of end-month observations*, they are calculated as weighted averages⁸⁶ of the interest rates applied to the stock of deposits and loans at a certain point in time on the last day of the month. At that point in time, the reporting agents collect the interest rates and the amounts involved for all outstanding contracts relevant for MFI interest rate statistics. As end-month observations, the MFI interest rates on outstanding amounts have the same time reference point as MFI balance sheet statistics. Hence, the amounts needed for weighting the interest rates may be taken from MFI balance sheet statistics. By means of the collected interest rates and amounts, the reporting agents then compile a weighted average interest rate for each instrument category.
- As *implicit rates referring to the average of the month*, interest rates on outstanding amounts are calculated as quotients. The numerator is the accumulated flow of interest during the reference month, i.e. the accrued interest payable on deposits and receivable on loans, and the denominator is the average monthly stock. At the end of the reference month, for each instrument category, the reporting agent needs to report the accrued interest payable or receivable during the month and the stock of deposits and loans on average during the same month. The NCB then calculates from these data the monthly implicit interest rate per instrument category. As averages of the month, these implicit rates on outstanding amounts have the same time reference point as the MFI interest rates on new business, which are covered in Section 6.2.

As explained in Section 5.3.1, overnight deposits, deposits redeemable at notice, convenience and extended credit card credit, and revolving loans and overdrafts experience a large number of inflows and outflows throughout the month. Therefore, the balance at the time reference point is taken as an indicator for the amount the customer has chosen to leave on the overnight deposit or the deposit redeemable at

⁸³ This chapter refers mainly to Part 3 of Annex I to the Regulation.

⁸⁴ See also paragraphs 29 to 34 of Annex I to the Regulation.

⁸⁵ Outstanding amounts are defined in Section 5.2.

⁸⁶ See also Chapter 9.

notice, or has chosen to take out as convenience or extended credit card credit or a revolving loan or overdraft instead of placing or borrowing the money elsewhere. Hence, for indicators 1, 5, 6, 7, 12, 23, 32 and 36 in Table 2 of the Appendix, and for indicators 86 and 87 in Table 8 of the Appendix, the compilation procedure and the time reference point are exactly the same as for the interest rates on outstanding amounts. The choice between a snapshot of end-month observations and an implicit rate referring to the average of the month has the following implications:

- In a *snapshot of end-month observations*, only one balance, i.e. the balance at a certain point in time on the last day of the month, is taken into account when computing the MFI interest rate. In the case of combined deposit and loan facilities,⁸⁷ it is sufficient to look at this balance to decide whether the account in the reference month is an overnight deposit or an overdraft.
- The denominator in an *implicit rate referring to the average of the month* is based on the average of the daily balances on the overnight deposit, deposit redeemable at notice, extended credit card credit or revolving loan and overdraft. Therefore, in the case of combined deposit and loan facilities, *each day* the reporting agent needs to assess whether the account is a deposit or a loan. The reporting agent then calculates an average of the daily credit balances and the daily debit balances to derive the average monthly stocks for the denominator of the implicit rate. Also, for the flows in the numerator of the implicit rate, accrued interest payable on deposits and receivable on loans need to be distinguished. Reporting agents should not report weighted average interest rates combining (low) overnight deposit rates and (high) bank overdraft rates.

It is up to each NCB to decide which of the two methods, i.e. a snapshot of end-period observations or implicit rates referring to period averages, is more appropriate in the national context. The ECB strongly recommends not mixing both approaches at national level, as this makes the interpretation of the national data more difficult. However, if there are very good reasons to mix both approaches because the type of institutions and the products offered require a different treatment, then this is accepted.

Calculating the interest rates and the weights based only on the amounts outstanding on the last day of the month, as in the case of a snapshot, is less accurate than referring to the average stock during the month, as required for implicit rates. For example, day-of-the-month effects might distort the end-month results. However, these distortions are expected to be small as a result of the number of accounts covered. Indeed, MFI interest rates on outstanding amounts cover all deposits placed and not yet withdrawn or all loans withdrawn and not yet repaid by customers in all the periods up to and including the reporting date. A snapshot of end-month observations only covers those contracts that are still outstanding at the time of data collection. By contrast, an implicit rate referring to the average of the

⁸⁷ Further discussed in Section 5.3.3.

month also includes contracts that were outstanding at some time during the month, but are not outstanding at the end of the month.

The main difference between the two methods is, however, the way in which the data are collected. In the case of a snapshot, interest rates are *directly collected*, whereas in the case of implicit rates, the interest rates are derived as a quotient. Assuming that the profit and loss accounts provide enough detail, the numerator in the quotient *derived* from these accounts should be of sufficiently high quality. The quality of the resulting implicit interest rates therefore depends on the denominator. Minimum standards for compiling the average monthly stock per instrument category are laid down in the Regulation. The ideal is the average of *daily* stocks over the month, as it ensures a close link between the flow in the numerator and the reference stock in the denominator. If instead the denominator refers to the end-month stock, then the flow in the numerator may include payments for contracts that have already expired at the end of the month, resulting in inaccurate implicit rates. Nevertheless, the ECB accepts approximations of the average of daily stocks if they fulfil the following minimum standards:

- For volatile instrument categories, i.e. at least overnight deposits, deposits redeemable at notice, extended credit card credit and revolving loans and overdrafts, the average monthly stock needs to be derived from *daily* balances.
- For all other instrument categories, the average monthly stock needs to be derived from *weekly or more frequent* balances.

6.2 Time reference point for interest rates on new business⁸⁸

As defined in Section 5.4.1, MFI interest rates on new business reflect the average interest rate level applied to deposits and loans in new agreements that have been agreed between customers and MFIs during the reference month. The time reference point for new business rates is therefore the average of the month. This holds true for all indicators in Table 2 of the Appendix, except for indicators 1, 5, 6, 7, 12, 23, 32 and 36, which refer to overnight deposits, deposits redeemable at notice, extended credit card credit and revolving loans and overdrafts, and for indicators in Tables 3, 4, 5, 7 and 9.

For each instrument category, reporting agents calculate the new business interest rate as a weighted average of *all* interest rates on new business operations in the instrument category during the reference month. They then transmit these new business interest rates referring to the average of the month to the NCB of the euro area Member State in which they are resident. The transmission includes weighting information on the amount of new business conducted during the reporting month for each instrument category. Reporting agents need to take into account the new business operations conducted during the *entire* month, rather than just a selected period during the month.

⁸⁸ See also paragraphs 35 to 37 of Annex I to the Regulation.

7 Instrument categories⁸⁹

7.1 Summary tables of indicators

MFI interest rate statistics provide detailed monthly information on 117 *indicators*, of which approximately three-quarters refer to new business and slightly less than one-quarter to outstanding amounts. All of the essential instrument categories for euro-denominated deposits and loans of households and non-financial corporations are covered. All indicators are, in principle, required at both euro area level and national level, but national deviations in the number of indicators exist, which is further discussed in Section 7.2. This set of indicators is organised in nine tables in Appendix 1, in accordance with the Regulation and the Guideline.

Table 1 shows the 26 instrument categories for which MFI interest rates on *outstanding amounts* are collected at euro area level. Depending on the choice of NCBs, the interest rates are either AARs or NDERs and are compiled either as a snapshot of end-month observations or as implicit rates referring to the average of the month.

Tables 2 to 9 list the 91 MFI interest rates on *new business* that are collected at euro area level. Indicators in Tables 2, 3, 4, 7, 8 and 9 are, depending on the NCBs' choice, either AARs or NDERs and as such reflect only the interest rate paid or charged by MFIs, excluding any other related fees. Indicators in Table 5 are APRCs and therefore comprise an interest rate component and a component of other charges. All new business rates other than indicators 1, 5, 6, 7, 12, 23, 32, 36, 86 and 87 are compiled as weighted average interest rates referring to the whole month. For indicators 1, 5, 6, 7, 12, 23, 32, 36, 86 and 87, new business interest rates are calculated in the same way as interest rates on outstanding amounts, as a snapshot of end-month observations or as implicit rates referring to the average of the month. The brackets around these indicators, included in Table 2 and in Table 8, illustrate their special status. The indicators in Table 6 are business amounts referring to the whole month.

With the 117 indicators in Tables 1 to 9, a balance is struck between the policy and analytical needs of the users and the reporting burden on MFIs. The set of indicators required by the Guideline (indicators in Tables 7, 8 and 9 of the Appendix) is submitted to the ECB by the NCBs on a best-efforts basis.

7.2 General provisions⁹⁰

MFI interest rate statistics for the euro area refer to *instrument categories* rather than to *individual products* as is the case with the national statistics on interest rates in

⁸⁹ This chapter refers mainly to Part 4, Appendix 1 and Appendix 2 of Annex I to the Regulation.

⁹⁰ See also paragraphs 38 to 41 of Annex I to the Regulation.

many countries. For example, MFI interest rates refer to consumer credit with “up to x years” maturity or interest rate fixation, whereas, for instance, in the United States interest rates are collected for a 48-month new car loan as a typical retail product. It is recognised that interest rates referring to typical retail products might be easier to interpret than interest rates referring to instrument categories and might provide a better comparison with capital market interest rates. In the euro area, however, there are large *national differences* in the banking business of MFIs. It is therefore not possible to define a sufficient number of typical retail products that are representative, or even available, in each Member State.

Also as a result of the national differences in products, deviations exist in the number of indicators compiled per Member State. In some Member States, MFIs do not take deposits or offer loans in some of the instrument categories listed in Tables 1 to 9 from/to households and non-financial corporations resident in the euro area. Where inapplicable, the NCBs in these Member States ignore the instrument categories in the data collection from reporting agents and collect less than the required 117 indicators at national level⁹¹. An instrument category is inapplicable at national level only if resident MFIs do not at all offer products belonging to this category to households and non-financial corporations resident in the euro area. Data have to be provided if some business exists, however limited it is.⁹²

NCBs need to cover each *instrument category* listed in Tables 1 to 9 that exists in the banking business of resident MFIs with euro area households and non-financial corporations, but not each *product* offered at national level. Covering all products could lead to a near-census situation in some countries with a wide variety of products. However, NCBs cannot exclude a whole instrument category on the grounds that the amounts involved are very small. So if an instrument category is only offered by one institution, then this institution needs to be a reporting institution. Furthermore, once an MFI is selected as a reporting agent, it has to cover for each instrument category *all* interest rates applied to all the products that come under this category. This principle implies that it is not up to NCBs to define a set of national products within each instrument category on which reporting agents collect data.

The exception to the rule of covering for each instrument category all interest rates applied to all the products are interest rates on *bad loans* and *loans for debt restructuring at rates below market conditions*. As already explained in Section 5.1, these loans are not covered by MFI interest rate statistics.

If a *new product* belonging to an existing instrument category is created, the reporting institutions cover it with the next reporting, as all reporting agents have to

⁹¹ It is possible that some NCBs collect more than 117 indicators at national level, because the statistical reporting requirements of the ECB are part of a broader statistical reporting framework which the NCB establishes under its own responsibility.

⁹² Council Regulation (EC) No 2533/98 concerning the collection of statistical information by the European Central Bank specifies in Article 8 that the ECB and NCBs may collect confidential statistical information for the tasks of the ESCB. The ECB and NCBs have to take all regulatory, administrative, technical and organisational measures to ensure the physical protection and logical security of confidential statistical information. The ECB has the responsibility to define common rules and implement minimum standards to prevent unlawful disclosure and unauthorised use of such information.

report all their products. If an instrument category did not exist in a Member State at the time the sample was first drawn, but one institution subsequently creates a new product belonging to this category, this institution needs to be introduced into the sample at the time of the next representativity check⁹³. The reason for this is that with the creation of this new product the instrument category is no longer inapplicable at national level.

7.3 Foreign-currency deposits and loans⁹⁴

MFI interest rate statistics cover the interest rates applied by resident MFIs (except central banks and money market funds) to *euro-denominated* deposits and loans vis-à-vis households and non-financial corporations resident in the euro area. Dual currency loans exist where the currency of the interest payments differs from the currency in which the loan is granted. The treatment of dual currency loans follows two principles:

1. either both the amount lent and the interest rate are covered by MFI interest rate statistics or both are excluded; and
2. one main use of MFI interest rate statistics is to monitor the transmission of the ECB's monetary policy.

Hence, if the lending rate agreed between the customer and the MFI is based on considerations relating to the monetary policy as carried out by the ESCB, then the interest rate and the amount of the loan should be covered by MFI interest rate statistics. If the loan is in the local currency, then it should be covered by the MFI interest statistics independently of the fact that interest payments are made in local currency or not.

7.4 Breakdown by sector⁹⁵

MFI interest rate statistics distinguish between interest rates applied in the banking business vis-à-vis households (including NPISHs) and vis-à-vis non-financial corporations. The ESA provides the standard for this sector classification:

1. The **non-financial corporation sector** consists of institutional units which are independent legal entities and market producers, and whose principal activity is the production of goods and non-financial services (ESA 2010, paragraph 2.45). The institutional units covered are the following:
 - (a) private and public corporations which are market producers principally engaged in the production of goods and non-financial services;

⁹³ Further discussed in Sections 12.8 and 12.9.

⁹⁴ See also paragraph 42 of Annex I to the Regulation.

⁹⁵ See also paragraphs 43 to 45 of Annex I to the Regulation.

- (b) cooperatives and partnerships recognised as independent legal entities which are market producers principally engaged in the production of goods and non-financial services;
 - (c) public producers which are recognised as independent legal entities and which are market producers principally engaged in the production of goods and non-financial services;
 - (d) non-profit institutions or associations serving non-financial corporations, which are recognised as independent legal entities and which are market producers principally engaged in the production of goods and non-financial services;
 - (e) head offices controlling a group of corporations which are market producers, where the preponderant type of activity of the group of corporations as a whole – measured on the basis of value added – is the production of goods and non-financial services;
 - (f) special-purpose entities (SPEs), the principal activity of which is the provision of goods or non-financial services; and
 - (g) private and public quasi-corporations which are market producers principally engaged in the production of goods and non-financial services.
2. The **household sector** consists of individuals or groups of individuals as consumers and as entrepreneurs producing market goods and non-financial and financial services (market producers) provided that the production of goods and services is not by separate entities treated as quasi-corporations. It also includes individuals or groups of individuals as producers of goods and non-financial services for exclusively own final use (ESA 2010, paragraph 2.118).

The household sector includes (ESA 2010, paragraph 2.119):

- (a) individuals or groups of individuals whose principal function is consumption;
- (b) persons living permanently in institutions who have little or no autonomy of action or decision in economic matters (e.g. members of religious orders living in monasteries, long-term patients in hospitals, prisoners serving long sentences, old persons living permanently in retirement homes). Such people are treated as a single institutional unit, i.e. a single household;
- (c) individuals or groups of individuals whose principal function is consumption and that produce goods and non-financial services for exclusively own final use; only two categories of services produced for own final consumption are included within the system: services of owner-occupied dwellings and domestic services produced by paid employees;
- (d) sole proprietorships and partnerships without legal status, other than those treated as quasi-corporations, and which are market producers; and

- (e) non-profit institutions serving households which do not have independent legal status, or those which do but which are of only minor importance.

Sole *proprietorships and partnerships* which are not recognised as independent legal entities and are market producers are classified as follows (ESA 2010, paragraph 2.141):

1. If they are quasi-corporations:
 - (a) those principally engaged in the production of goods and non-financial services: in sector S.11 (non-financial corporations);
 - (b) those principally engaged in financial intermediation and financial auxiliary activities: in sector S.12 (financial corporations)
2. If they are not quasi-corporations, they are classified in sector S.14 (households).

For the purpose of MFI interest rate statistics, the household sector includes also the *non-profit institutions serving households (NPISH) sector*, defined in ESA 2010 paragraph 2.129 as non-profit institutions which are separate legal entities, which serve households and which are private non-market producers. Their principal resources come from voluntary contributions in cash or in kind from households in their capacity as consumers, payments made by general government and property income.

The NPISH sector includes the following main kinds of NPISHs that provide non-market goods and services to households (ESA 2010, paragraph 2.130):

1. trade unions, professional or learned societies, consumers' associations, political parties, churches or religious societies (including those financed but not controlled by governments), and social, cultural, recreational and sports clubs; and
2. charities or relief or aid agencies financed by voluntary transfers in cash or in kind from other institutional units.

This sector also includes charities or relief or aid agencies serving non-resident units and excludes entities where membership gives a right to a predetermined set of goods and services.

Indicator 5 in Table 1 and indicator 11 in Table 2 refer to *repos*. At the euro area level, no sector breakdown for *repos* is required, because their remuneration is often, although not in all Member States, independent of the holding sector. Thus, for the purpose of MFI interest rate statistics on *repos*, the two sectors, households and non-financial corporations, are merged. Indicator 5 in Table 1 and indicator 11 in Table 2 therefore indistinguishably refer to both sectors instead of either households or non-financial corporations. In line with the 5th recital and Article 3(2) of the Regulation, NCBs may ask for a sector breakdown for *repos* at national level.

Indicators 5 and 6 in Table 2 refer to deposits redeemable at notice held by households. In the euro area, *deposits redeemable at notice* are overwhelmingly owned by *households*, i.e. currently about 95% of all deposits redeemable at notice held with MFIs. Non-financial corporations hold about 5% of these deposits. Since it was found to be more cost-efficient to include households and non-financial corporations indistinguishably in one sector, MFI interest rates are collected for deposits redeemable at notice vis-à-vis both sectors and then entirely allocated to deposits redeemable at notice held by households.

7.5 Breakdown by type of instrument⁹⁶

7.5.1 Types of deposits

The instrument breakdown by type of deposit for MFI interest rate statistics and the definitions used follow MFI balance sheet statistics and hence Regulation ECB/2013/33. It defines **overnight deposits**⁹⁷ as deposits which are convertible into currency and/or which are transferable on demand by cheque, banker's order, debit entry or similar means, without significant delay, restriction or penalty. This item includes:

- balances (interest bearing or not) which are immediately convertible into currency on demand or by close of business on the day following that on which the deposit was made, without any significant penalty or restriction, but which are not transferable;
- balances (interest bearing or not) representing prepaid amounts in the context of "hardware-based" or "software-based" e-money (e.g. prepaid cards).

MFI interest rates on overnight deposits, i.e. indicators 1 and 7 in Table 2, cover *all* overnight deposits, whether or not they are interest bearing. Zero-interest overnight deposits influence the transmission mechanism of monetary conditions, the own rate of return on M3, the interest burden on households and non-financial corporations, etc., and are therefore captured by MFI interest rate statistics.

According to Regulation ECB/2013/33 **deposits with agreed maturity** are "non-transferable deposits which cannot be converted into currency before an agreed fixed term or that can only be converted into currency before that agreed term provided the holder is charged some kind of penalty. This item also includes administratively regulated savings deposits where the maturity related criterion is not relevant (classified in the maturity band "over two years"). Financial products with roll-over provisions must be classified according to the earliest maturity. Although deposits with agreed maturity may feature the possibility of earlier redemption after prior notification, or may be redeemable on demand subject to certain penalties,

⁹⁶ See also paragraphs 46 to 55 of Annex I to the Regulation.

⁹⁷ This and the following definitions can be found in Part 2 of Regulation ECB/2013/33.

these features are not considered to be relevant for classification purposes.” Indicators 1 to 4 in Table 1 and indicators 2 to 4 and 8 to 10 in Table 2 follow this definition.

The same Regulation defines **deposits redeemable at notice** as “non-transferable deposits without any agreed maturity which cannot be converted into currency without a period of prior notice; before the expiry the conversion into currency is not possible or possible only with a penalty. They include deposits which, although perhaps legally withdrawable on demand, would be subject to penalties and restrictions according to national practice (classified in the maturity band “up to and including three months”), and investment accounts without period of notice or agreed maturity, but which contain restrictive drawing provisions (classified in the maturity band “over three months”).” This definition applies to indicators 5 and 6 in Table 2.

Also, Regulation ECB/2013/33 defines **repos** as “counterpart of cash received in exchange for securities sold by reporting agents at a given price under a firm commitment to repurchase the same (or similar) securities at a fixed price on a specified future date. Amounts received by reporting agents in exchange for securities transferred to a third party (“temporary acquirer”) are to be classified under “repurchase agreements” where there is a firm commitment to reverse the operation and not merely an option to do so. This implies that reporting agents retain all the risks and rewards of the underlying securities during the operation.”

7.5.2 Types of loans

The instrument breakdown by type of loan for MFI interest rate statistics and the definitions used follow as far as possible MFI balance sheet statistics (Regulation ECB/2013/33). For the purpose of MFI interest rate statistics, *revolving loans* and *overdrafts* (i.e. indicators 12 and 23 in Table 2) are defined as follows:

Revolving loans are loans that have all of the following features: (1) the borrower may use or withdraw funds up to a pre-approved limit without giving prior notice to the lender; (2) the amount of available credit can increase and decrease as funds are borrowed and repaid; (3) the credit may be used repeatedly; and (4) there is no obligation to regularly repay the funds.

Revolving loans include the amount obtained through a line of credit and not yet repaid (outstanding amounts). A line of credit is an agreement between a lender and a borrower that allows a borrower to take advances, during a defined period and up to a certain limit, and repay the advances at his/her discretion before a defined date. Amounts available through a line of credit that have not been withdrawn or have already been repaid should not be considered under any loan category.

Overdrafts are debit balances on current accounts.

Both *revolving loans* and *overdrafts* exclude loans provided through credit cards. The total amount owed by the borrower has to be reported, irrespective of whether it is

within or beyond any limit agreed beforehand between the lender and the borrower with regard to the size and/or maximum period of the loan.

The interest rate on overdrafts refers to the rate charged when an overnight deposit becomes negative, i.e. the overnight deposit and the overdraft are linked to the same account. In contrast to loans to non-financial corporations up to one year and consumer credit and other loans to households up to one year, overdrafts are without a defined maturity and, in general, are authorised but taken without giving prior notice to the bank. Usually, the MFI defines an upper limit on the size and a maximum period of the overdraft. All overdrafts are covered, whether they are within or beyond the limit agreed between the reporting agent and the household or non-financial corporation. Typically, penalties apply if the overdraft is extended beyond the agreed limit. The penalties may be charged as an interest rate component, a component of other charges, or a combination of both. Penalties on overdrafts applied as a component of other charges, i.e. in the form of special fees, are not covered by the AAR or the NDER, because these rates only cover the interest rate component of loans. If penalties on overdrafts are applied as an interest rate component, i.e. a higher interest rate, this higher interest rate is reflected in MFI interest rate statistics.

For the purpose of MFI interest rate statistics, **credit card debt** has the same meaning as defined in Part 2 of Annex II to Regulation ECB/2013/33. Credit cards allow households and non-financial corporations to postpone the payment of a transaction. Depending on the conditions of this postponement, two kinds of cards can be distinguished: delayed debit cards and credit cards, which give the cardholder access to two different types of credit:

1. **Convenience credit** is defined as the credit granted at an interest rate of 0% in the period between the payment transaction(s) made with the card during one billing cycle and the date at which the debit balances from this specific billing cycle become due.

Through these cards and also through credit cards, the cardholder makes purchases during one period, generally one month, paying with the card. The receipts of the purchases arrive successively at the credit institution which issued the card. The credit card contract with the cardholder specifies that the receipts that arrive during a month will be debited, all together, for example, on the 5th day of the following month, from the cardholder's current account or loan account. No interest is charged to the cardholder for this deferral of payment, which lasts at most one month.

2. **Extended credit**⁹⁸ comprises credit granted to the cardholder after the due date(s) of the previous billing cycle(s) has/have passed, i.e. debit amounts on the card account that have not been settled when this was first possible, for which an interest rate or tiered interest rates usually greater than 0% are charged. Often, minimum instalments per month have to be made, to at least partially repay extended credit.

⁹⁸ See also paragraph 49 of Annex I to the Regulation.

According to these two definitions of credit granted through credit cards, a delayed debit card can give access to both types of credit: *convenience credit* for the transactions made during one month until the due date, and *extended credit* for the balance not paid by the due date. This would be the case if the current or loan account where the total bills of the month should be settled has insufficient funds. The terms and conditions agreed between the MFI issuing the card and the cardholder include the rate of interest that the MFI will charge the cardholder for the balance not paid by the due date. Therefore, the amount not paid by the due date has to be classified as “extended credit”. Nevertheless, normally “extended credit” through a credit card comes from the transactions made by the cardholder with a credit card, the terms and conditions of which stipulate the deferred payment of such transactions and the interest rate that the MFI will charge on the amount spent and not yet repaid.

Data on the interest rate are collected separately only in respect of **extended credit card credit** in indicators 32 and 36 of Table 2. The interest rate on convenience credit card credit is not reported separately, as it is by definition 0%. However, the outstanding convenience credit card credit is included in MFI interest rate statistics on outstanding loan amounts, together with the outstanding extended credit card credit. In addition, convenience credit is included in indicators 86 and 87 of Table 8.

Yet, a *question* still needs to be answered: given that extended credit card credit allows the cardholder to postpone the payment of the transactions until a certain date, should this be recorded as new business at the time the credit card contract is signed or should only the amounts drawn be recorded?

Answer: The recording of new business figures for extended credit card credit is one of the cases (together with overnight deposits, deposits redeemable at notice and revolving loans and overdrafts) where the interest rates on new business and on outstanding amounts coincide, as both are calculated as the rate of interest applied to the outstanding amount on the last day of the corresponding reference month (“snapshot” option) or as the average of the stock throughout the month.

The following example aims to clarify the recording of convenience and extended credit in MFI interest rate statistics.

A customer has a credit card (not linked to any deposit or loan account) with which he or she withdraws cash and makes purchases of goods and services up to a maximum amount of EUR 5,000. The credit card receipts are sent to the MFI that issued the card, and every month-end, the credit institution sends the cardholder an invoice for the value of the credit card receipts. The due date agreed to pay the bill is the 26th of each following month, which means that the cardholder is granted a maximum interest-free period of 56 days, during which he/she has to pay a minimum amount of 3% of the balance. If the customer does not pay this minimum amount, in addition to the interest payments, additional charges will be imposed. Interest is only charged after this interest-free period has passed on the outstanding balance, and it is 16% per annum.

The following transactions were carried out during September and October 2013:

Table 7
Credit card transactions

Credit card operation date	Operation	Amount	Observations	Total debt: Convenience credit	Repayments	Total debt: Extended credit
10-Sep-13	Purchase of good 1	€ 1,750		€ 1,750		
16-Sep-13	Withdraw	€ 500		€ 2,250		
30-Sep-13			End of billing cycle	€ 2,250		
12-Oct-13	Payment			€ 1,500	€ 750	
26-Oct-13			End of the interest free period			€ 1,500
28-Oct-13	Purchase of good 2	€ 500		€ 500		€ 1,500
31-Oct-13			End of billing cycle	€ 500		€ 1,500

Question:

1. What amounts and interest rates should be recorded in MFI interest rate statistics for October 2013, as outstanding amounts and new business for the different instruments involved and, specifically, does the maximum amount set by the credit institution (EUR 5,000) constitute new business?
2. How would penalties due to late payments affect MIR statistics?

Answer:

1. The recording in October 2013 of the different transactions undertaken is as follows:

Table 8
The recording (October 2013) of the different transactions

Table	Loan / deposit	Sector	Type of instrument	Original maturity / period of notice / initial rate fixation	Rate	Volume
Outstanding amounts	L	HH	Loans for consumption and other purposes (indicators 9 to 11 in Table 1 of the Appendix)	[decided at national level]	12%	(2,000 BSI)
New business	L	HH	Extended credit (indicator 32 in Table 2 of the Appendix)		16%	(1,500 BSI)
New business	L	HH	Revolving loans and overdrafts, convenience and extended credit (indicator 86 in Table 8 of the Appendix)		12%	2,000

The 12% is calculated as a weighted average of the 0% and the 16%:

$$(16\% \cdot 1500 + 0\% \cdot 500) / 2000 = 12\%$$

The amount of new business is the money that has actually been drawn. The maximum amount set by the credit institution does not constitute new business. The repayments of the outstanding balances during the month are captured by decreases in the outstanding amounts. If the cardholder pays off the balance in full at the counter or by bank transfer before the due date and thereby incurs no interest charges, only the interest-free period is reflected for overdrafts in the form of a 0% interest rate on the outstanding amount.

Regarding the penalties, if a minimum amount of 3% of the balance is not repaid within 56 days and a penalty is charged in the form of higher interest rates, this penalty is also reflected in MFI interest rate statistics. If the penalty is applied in the form of fees or other non-interest components, it is not covered.

Regulation ECB/2013/33 defines **loans** as “holdings of financial assets created when creditors lend funds to debtors which are not evidenced by documents or are evidenced by non-negotiable documents”.

Loans to non-financial corporations comprise all loans to non-financial corporations regardless of their size.⁹⁹ In the case of outstanding amounts, i.e. for indicators 12 to 14 and 21 to 26 in Table 1, loans to non-financial corporations cover revolving loans and overdrafts, and convenience and extended credit card credit. By contrast, new (other)¹⁰⁰ loans in indicators 37 to 54 in Table 2, indicators 62 to 79 in Table 3, indicators 80 to 85 in Table 4, indicator 91 in Table 6, indicators 24 to 29 in Table 7 and indicator 91 in Table 9 exclude revolving loans and overdrafts and credit card debt for the purpose of MFI interest rate statistics. As explained above, revolving loans and overdrafts and extended credit card credit to non-financial corporations constitute, as indicators 23 and 36, separate instrument categories in Table 2. Revolving loans and overdrafts, and convenience and extended credit card credit to non-financial corporations constitute in turn a separate indicator 87 in Table 8. The interest rate on convenience credit card credit is not reported separately, as it is by definition 0%.

According to Regulation ECB/2013/33, **loans for consumption granted to households** are “loans granted for the purpose of mainly personal use in the consumption of goods and services”. Credit for consumption granted to sole proprietors and partnerships without legal status is included in this category if the reporting MFI knows that the loan is predominantly used for personal consumption purposes. In the case of outstanding amounts, i.e. for indicators 9 to 11 in Table 1, consumer credit covers revolving loans and overdrafts and credit card debt. By contrast, new loans to households for consumption, i.e. indicators 13 to 15 in Table 2, indicators 55 to 57 in Table 3, indicator 30 in Table 5, indicator 88 in Table 6 and indicator 88 in Table 9, exclude revolving loans and overdrafts and credit card debt for the purpose of MFI interest rate statistics. These instruments are included in Table 2 as separate instrument categories, i.e. indicators 12 and 32.

⁹⁹ Further discussed in Section 7.6.

¹⁰⁰ “Other” refers to “other than revolving loans and overdrafts and credit card debt”.

Regulation ECB/2013/33 defines **loans to households for house purchases**¹⁰¹ as “credit extended for the purpose of investing in houses for own use or rental, including building and refurbishments”. It comprises loans secured on residential property that are used for the purpose of house purchase and other loans for house purchases made on a personal basis or secured against other forms of assets. Housing loans granted to sole proprietors and partnerships without legal status are included in this category unless the reporting agent knows that the house is predominantly used for business-related purposes, in which case it is reported as “for other purposes, of which: Sole proprietors”. MFI interest rate statistics in Tables 1 and 2 cover indistinguishably secured and unsecured loans to households for house purchases, while indicators 58 to 61 in Table 3 refer only to loans with collateral and/or guarantees. In the case of outstanding amounts (i.e. for indicators 6 to 8 in Table 1) loans to households for house purchases include revolving loans and overdrafts and credit card debt, while in the case of new business (i.e. for indicators 16 to 19 in Table 2, indicators 58 to 61 in Table 3, indicator 31 in Table 5, indicator 89 in Table 6 and indicator 89 in Table 9) revolving loans and overdrafts and credit card debt are excluded. Instead, revolving loans and overdrafts and extended credit card credit to households are covered in Table 2 as part of separate instrument categories, i.e. indicators 12 and 32.

Other loans to households are defined in Regulation ECB/2013/33 as loans granted for purposes other than consumption and house purchase such as business, debt consolidation, education, etc. In the case of outstanding amounts (i.e. for indicators 9 to 11 in Table 1, other loans to households include revolving loans and overdrafts and credit card debt. In the case of new business (i.e. for indicators 20 to 22 in Table 2, indicator 90 in Table 6 and indicator 90 in Table 9), new loans to households for other purposes exclude revolving loans and overdrafts and extended credit card credit, because they are covered in Table 2 as part of separate instrument categories (i.e. indicators 12 and 32).

For MFI interest rates on *outstanding amounts*, consumer credit, loans to households for house purchases and other loans to households together cover all loans granted to households by resident MFIs. For MFI interest rates on *new business*, the possible loan types for households are revolving loans and overdrafts, convenience and extended credit card credit, credit for consumption, loans to households for house purchases and other loans.

7.6 Breakdown by amount category¹⁰²

Large non-financial corporations have considerable economic significance and account for a substantial share of banking business. The loans granted to large firms will, due to the amounts involved, dominate any weighted average interest rate referring to the non-financial corporation sector as a whole. Small firms, however,

¹⁰¹ ECB/2013/33 refers to “lending for house purchases”.

¹⁰² See also paragraph 56 of Annex I to the Regulation.

may play a special role in the transmission of monetary policy, since they have limited access to capital markets and are therefore more vulnerable to changes in the lending rates offered by MFIs. In general, larger firms are more able to negotiate the interest rate and conditions than small firms so that large non-financial corporations have available to them less standardised products with interest rates that are closer to (or identical with) market interest rates.

The size of non-financial corporations can be defined on the basis of various measures such as the number of employees or the turnover. Instead of the size of the non-financial corporation, the *size of the loan* is considered to be more relevant for distinguishing banking conditions in broad terms for the purpose of MFI interest rate statistics.¹⁰³ Indeed, most Member States confirmed a link between the amount of the loan granted and the interest rate. It should, however, be borne in mind that the amount of a loan is only one of many criteria that are taken into account when negotiating the interest rate. The sum of all criteria may best be summarised by “credit risk”.

For new (other)¹⁰⁴ loans to non-financial corporations, i.e. indicators 37 to 54 in Table 2, 62 to 79 in Table 3 and 80 to 85 in Table 4, three size categories for the amount of the loan granted are distinguished, i.e. “up to and including EUR 0.25 million”; “over EUR 0.25 and up to and including EUR 1 million”; and “over EUR 1 million”. The amount refers to the single loan transaction considered as new business. It does not cover all business between the non-financial corporation and the reporting agent. Additionally, the NCBs have to calculate and submit to the ECB a complementary size category for indicators 24 to 29 in Table 7 up to and including EUR 1 million, and over an amount of EUR 1 million, in addition to the other size categories mentioned above.

Amount categories apply only to new business rates vis-à-vis non-financial corporations and only to the instrument category of other loans. No breakdown by amount category is required for revolving loans and overdrafts and credit card debt or for deposits of non-financial corporations. Also, no breakdown by amount is requested for deposits and loans from/to households or for interest rates on outstanding amounts.

The breakdown by amount category for other loans to non-financial corporations increases the comparability of the interest rates on such loans since the size of the individual loans covered varies widely. As already mentioned at the beginning of this section, without amount categories a weighted average interest rate on loans to non-financial corporations would be dominated by the interest rates on the largest loans during the reporting month. This weighted average lending rate might not be representative of most loans to non-financial corporations. The indicators for (other) loans to non-financial corporations of an amount up to and including EUR 0.25 million are assumed to reflect the interest rates faced by smaller corporations, which are “price takers” rather than “price makers”.

¹⁰³ This is also partly due to the fact that up-to-date information on the size of the company is not always available.

¹⁰⁴ “Other” refers to “other than revolving loans and overdrafts and credit card debt”.

7.7 Breakdown by original and residual maturity, notice and interest rate reset period or initial rate fixation¹⁰⁵

7.7.1 Time bands

Depending on the type of instrument and whether interest rates on outstanding amounts or new business are being looked at, MFI interest rate statistics provide a breakdown by original and residual maturity, notice and interest rate reset period, or initial period of fixation of the interest rate. These breakdowns refer to *time bands* or ranges. For example, an interest rate on a deposit with an agreed maturity of up to two years refers to an average interest rate across all deposits with an agreed original maturity between one day and a maximum of two years. Time bands or ranges are also used in the MFI balance sheet statistics.

The alternative would be to define exact points in time, i.e. interest rates on instruments with a maturity or a notice, interest rate reset or initial rate fixation period of x years/months. The advantages and drawbacks of basing statistics on exact products rather than instrument categories are discussed in Section 7.2.

7.7.2 Original and residual maturity and period of notice

A breakdown by *original maturity* is applied in Table 2 to new business in deposits with agreed maturity. In Table 1, a breakdown by original maturity is required for all lending rates and all deposit rates on outstanding amounts with the exception of repos. A breakdown by original maturity in combination with residual maturity and the next interest rate reset is required for indicators 15 to 20 and 21 to 26 in Table 1. For lending rates on new business, the corresponding breakdowns are expressed in terms of *initial period of interest rate fixation* which, according to the Regulation, is defined as a predetermined period of time at the start of the contract during which the value of the interest rate will not change¹⁰⁶. Separate data on loans to non-financial corporations with an initial rate fixation period of up to one year in combination with an original maturity of above one year are also reported (indicators 80 to 85 in Table 4).

For repos (i.e. indicator 5 in Table 1 and indicator 11 in Table 2), no maturity breakdown is required at the euro area level, as repos are assumed to be predominantly very short-term. At the national level, NCBs may ask for a maturity breakdown for repos, which would be in line with the 5th recital and Article 3(2) of the Regulation.

The definition of (and the breakdown by) original maturity follows Regulation ECB/2013/33, which states that “maturity at issue (original maturity)

¹⁰⁵ See also paragraphs 57 to 61 of Annex I to the Regulation.

¹⁰⁶ Further details can be found in Section 7.7.4.

refers to the fixed period of life of a financial instrument before which it cannot be redeemed (e.g. debt securities) or before which it can be redeemed only with some kind of penalty (e.g. some types of deposits)".

Question:

Revolving loans and overdrafts, and convenience and extended credit typically have no predefined maturity date. In which maturity band should these loans be included in Table 1 of the Regulation?

Answer:

If no specific agreement is made regarding the repayment schedule, revolving loans and overdrafts, and convenience and extended credit should be considered short-term, i.e. these loans should be reported in outstanding amounts of loans with an agreed maturity of up to one year.

The same Regulation defines further that the *period of notice* corresponds to the time between the moment the holder gives notice of an intention to redeem the instrument and the date on which the holder is allowed to convert it into cash without incurring a penalty. Financial instruments are classified according to the period of notice only when there is no agreed maturity. For MFI interest rates, a breakdown by period of notice is applied in Table 2 to new business in deposits redeemable at notice.

7.7.3 Period of maturity for a loan taken out in tranches¹⁰⁷

Question:

A loan is agreed between a credit institution and a customer at t_0 , but the customer takes out the funds only two months later at t_1 . Should the original maturity of this loan be defined as:

- the date of the contract (t_0) until the end of the contract (t_n), or
- the first value date (t_1) until the end of the contract (t_n)?

Answer:

A household or non-financial corporation will normally take out a loan (other than an overdraft) in full at the start of the contract. Hence, in general, the contract date t_0 and the first value date t_1 coincide. It may happen that a household or non-financial corporation decides to take out the loan in tranches at times t_1 , t_2 , t_3 , etc. instead of withdrawing the full amount at the start of the contract (time t_0). Whatever the pattern of withdrawals, for new business the original maturity of the loan always refers to the agreed original loan period according to the loan contract, i.e. in this example to the period from t_0 to t_n .

Nevertheless, the loan actually appears in the MFI balance sheet statistics only at time t_1 . Therefore, at that time, it appears for the first time in MFI interest rate

¹⁰⁷ Defined in Section 5.4.9.

statistics on *outstanding amounts*, but the original maturity of this loan in these statistics is the same as in *new business*. The same applies to the original maturity of outstanding amounts should successive loan tranches be withdrawn.

7.7.4 Initial period of fixation of the interest rate

Users have always expressed a strong need for a distinction between variable and fixed interest rates on loans. This is an unquestionable need since the effects of monetary policy decisions are more quickly transmitted through variable interest rates than through fixed interest rates. In order to implement such a breakdown in a harmonised way across all Member States, *variable* and *fixed* need to be clearly defined. The definition needs to be unambiguous for all Member States and able to cope with financial innovations, which tend to cause difficulties at the borderline. However, large national differences exist in the retail banking business in the EU in that there is no common view on the period of fixation that classifies a lending interest rate as fixed or variable. An interest rate which is fixed for one year and then variable might be considered as fixed in one Member State and as variable in another depending on national lending practices.

To overcome this problem, the *initial period of rate fixation* was introduced as the basis for a breakdown of new lending business in MFI interest rate statistics. It gives an indication of the variability of interest rates at euro area level, without prejudging whether a loan with a specific fixation period is considered as fixed or variable in the national context. The initial period of fixation is a predetermined period of time at the start of a contract during which the value of the interest rate cannot change. The value of the interest rate is only considered to be unchangeable if it is defined as:

- an *exact level*, for example as 10%, or
- a spread over an external index *at a certain time*, for example as six-month EURIBOR plus two percentage points, which is equivalent to an exact interest rate level.

If at the start of the contract the customer and the reporting agent agree on a *procedure* for calculating the lending rate, this is *not* considered to be an initial rate fixation. For example, it might be agreed that six-month EURIBOR plus two percentage points is the interest rate for the loan. Here two cases should be distinguished: (1) whether the variable rate used, here the six-month EURIBOR plus two percentage points, is changing on a frequent basis, for instance every day or at an unknown or irregular frequency; or (2) whether the rate is fixed for the first six months and then updated every six months using the six-month EURIBOR as a base. In the first case, there is no initial rate fixation. In the second case, the initial period of interest rate fixation is six months. This application of a rate changing at a frequency linked to the external index is common in many countries. It could be the case, however, that the initial period of rate fixation is shorter or longer than the external index reference period. In these cases and as a general rule, the Manual recommends recording as the initial rate fixation period the actual period defined at the start of the contract during which the level of the interest rate applied to the

deposit or loan does not change, independently of the external index reference period. For new loans granted to non-financial corporations, six periods of initial rate fixation are distinguished (indicators 37 to 54 in Table 2 and indicators 62 to 79 in Table 3). This detail, together with the five¹⁰⁸ loan amount categories, allow a detailed picture to be obtained of how monetary policy is affecting the structure of the loans for each kind of enterprise.

Three periods of initial rate fixation are defined for new loans to households for consumption and for other purposes, i.e. indicators 13 to 15, 20 to 22, and 33 to 35 in Table 2, and indicators 55 to 57 in Table 3, loans without any interest rate fixation are included as loans with *floating rates* that have up to a one-year period of initial rate fixation:

- floating rate and up to (and including) 1 year initial rate fixation;
- over 1 and up to (and including) 5 years initial rate fixation; and
- over 5 years initial rate fixation.

Considering that 95% of loans to households for house purchases are granted with an original maturity of over five years, and in some countries with an interest rate fixation of ten years or more, for this type of loan four periods of initial rate fixation are distinguished; again, loans without any interest rate fixation are included as loans with floating rates that have up to a one-year period of initial rate fixation:

- floating rate and up to (and including) 1 year initial rate fixation;
- over 1 and up to (and including) 5 years initial rate fixation;
- over 5 and up to (and including) 10 years initial rate fixation; and
- over 10 years initial rate fixation.

Normally, the initial period of rate fixation is shorter than or equal to the original maturity of the loan.¹⁰⁹ The initial period of rate fixation might be short and the interest rate agreed between the customer and the reporting agent for this initial period of fixation might not be representative of the entire maturity of the loan. *New business* statistics only reflect the interest rate that is agreed for the initial period of fixation at the start of a contract or after renegotiation of the loan. If, after this initial period of fixation, the interest rate automatically changes to a variable rate, which might be at a very different level, this is *not* reflected in the MFI interest rates on new business, but rather in those on outstanding amounts. Hence, *both* sets of statistics are needed to capture the interest rate level and developments in the euro area and at national level. The two following examples further illustrate the interdependence of MFI interest rate statistics on new business and on outstanding amounts.

¹⁰⁸ Three required by the Regulation and two, additionally, by the Guideline.

¹⁰⁹ In exceptional cases, the initial period of rate fixation may be longer than the maturity of the loan. For example, if a loan is agreed to which a fixed interest rate applies for the first year and this loan may be repaid with one month's notice, then the shortest possible maturity is one month and the period of initial rate fixation is one year.

A ten-year consumer credit is granted. At time t_0 , the customer and the reporting agent agree that the interest rate is fixed at 10% p.a. for the first four years and that a new interest rate level is negotiated at time t_4 .¹¹⁰ The result of the renegotiation at time t_4 is a loan fixed at 8% p.a. for the remaining maturity. At time t_0 , the maturity of this loan is ten years with an initial period of fixation of four years. At time t_4 , the original maturity of the loan is still ten years and the classification of the loan in the statistics on *outstanding amounts* is therefore independent of the new negotiation.¹¹¹ Hence, the MFI interest rate statistics on outstanding amounts would reflect at time t_4 the decrease from 10% to 8% p.a. in the category *maturity over 5 years*. The results of the renegotiation are also captured as a new agreement in MFI interest rate statistics on *new business*; the 8% p.a. is recorded for loans with an initial rate fixation of six years in the category *over 5 years initial rate fixation*.

Another ten-year consumer credit is granted. This time the customer and the reporting agent agree at time t_0 that the interest is fixed at 9% p.a. for the first 12 months and that it then automatically adjusts to EURIBOR plus x basis points.¹¹² This rate is then applied for the next 12 months, after which it will again automatically adjust to EURIBOR plus z basis points. At time t_0 , the maturity of the loan is ten years with an initial period of rate fixation of one year. Only the interest rate of 9% for the first year is considered as new business at time t_0 . The movements in the interest rate over time are captured in the MFI interest rates on *outstanding amounts*, but no further new business occurs.

The situation is different if the initial period of fixation is very short compared with the whole maturity of the loan and the interest rate offered during this period is significantly below market conditions. For example, a ten-year loan is granted where the interest rate is fixed at 2% for the first six months and then automatically adjusts to either a fixed or a variable interest rate at a level reflecting market conditions. To qualify for the treatment described here, the 2% must be an introductory offer and “eye-catcher” to attract new customers, in the sense that the interest rate is significantly lower than current market conditions, i.e. at least 200 basis points, and applies for a very short period of the loan. The interest rate that applies after this initial period of fixation has to be already laid down in the contract agreed at time t_0 . It can be fixed or variable but in any case it should be at a level reflecting market conditions. The treatment of loans comprising such introductory offers to attract customers is the same as that for step-up loans explained in Section 8.1. This means that the new business statistics cover the loan at time t_0 . The Manual recommends that in these cases, the interest rate on new business is computed as an NDER comprising the introductory offer and the interest rate agreed for after the initial period of fixation. A geometric average of the factors “i+interest rate” could also be computed, but this would only be an approximation. If a variable interest rate is

¹¹⁰ See also Chart 5.

¹¹¹ This treatment is in line with MFI balance sheet statistics. This situation of a loan that is renegotiated *before* it reaches maturity is different from the deposit with agreed maturity that is renegotiated *at* maturity described in Section 5.4.4. In the latter case, the maturing deposit with agreed maturity is renegotiated and therefore classified as new business, and the maturity of the (new) deposit is regarded as commencing at the point of the “new business” classification.

¹¹² See also Chart 6.

agreed to apply after the initial period of fixation, for example EURIBOR plus x basis points, as a convention the value of that variable rate is, for the purpose of MFI interest rates on new business, determined as at time t_0 . The statistics on *outstanding amounts* always reflect the interest rate actually applied by the reporting agent at the time of calculation of the MFI interest rate, i.e. the 2% during the first months and then the agreed interest rate at a level reflecting market conditions.

For all *step-up* and *step-down loans*, the initial period of fixation is equal to the maturity of the loan, because a *fixed* interest rate is agreed for the *whole* maturity of the loan at time t_0 when the contract is signed.

7.8 Breakdown by secured loans with collateral and/or guarantees¹¹³

The provision or the absence of collateral and/or a guarantee can lead to different levels of interest rates being charged on loans. A breakdown by secured loans granted to households and non-financial corporations should allow interest rates to be broken down into more homogeneous risk groups and, as a consequence, into more homogeneous interest rate categories, appropriately reflecting the associated credit risk. In addition, the data allow more in-depth analyses of how credit risk influences the way in which lenders structure their terms and conditions, thus also allowing conclusions to be drawn about borrowers' financing costs.

Therefore, indicators 55 to 79 in Table 3 referring to loans to households and non-financial corporations secured with collateral and/or guarantees are reported separately for all MIR statistics new business categories except for credit card debt, revolving loans and overdrafts, and lending for other purposes.

Furthermore, no breakdown by collateral/guarantees is required for the indicators referring to new business in renegotiated loans.

For the purpose of MFI interest rate statistics, the breakdown of loans according to collateral/guarantees includes the total amount of new business loans which is collateralised using the "funded credit protection" technique and/or guaranteed using the "unfunded credit protection" technique, in such a way that the value of the collateral and/or guarantee is higher than or equal to the total amount of the loan.

- "Funded credit protection", as defined in Article 4(1)(58) and Articles 197 to 200 of Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms, is a credit risk mitigation technique where the reduction of the credit risk on the exposure of an institution derives from the right of that institution, in the event of the default of the counterparty or on the occurrence of other specified credit events relating to the counterparty, to liquidate, or to obtain transfer or appropriation of, or to retain certain assets or amounts, or to

¹¹³ See also paragraphs 63 and 64 of Annex I to the Regulation.

reduce the amount of the exposure to, or to replace it with, the amount of the difference between the amount of the exposure and the amount of a claim on the institution.

- “Unfunded credit protection”, as defined in Article 4(1)(59) and Articles 201, 202 and 203 of Regulation (EU) No 575/2013, is a credit risk mitigation technique where the reduction of the credit risk on the exposure of an institution derives from the obligation of a third party to pay an amount in the event of the default of the borrower or the occurrence of other specified credit events.

If an MFI applies an approach different from the “Standardised Approach” as defined in Regulation (EU) No 575/2013 for supervisory purposes, it may also apply the same approach to the reporting of loans included under this breakdown.

8 Specific instruments and national products

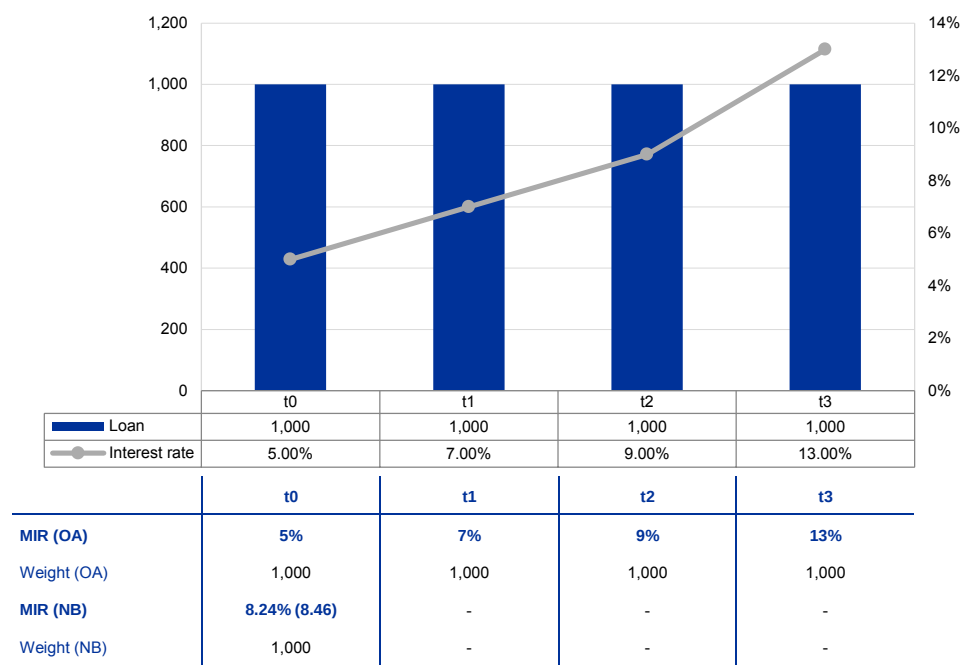
Not all specific national products can be covered by this Manual. Hence, in the same way as in Part 15 of Annex II to the Guideline, the treatment of the selected products defined in this chapter should be used as a reference for other national products with similar characteristics.

8.1 Step-up (step-down) deposits and loans

A step-up (or step-down) deposit or loan is “a deposit or loan with a fixed maturity to which an interest rate is applied that increases (decreases) from year to year by a pre-fixed number of percentage points”. As mentioned in Section 7.7.4, the initial period of rate fixation for a step-up or step-down loan is equal to the maturity of the loan, because a *fixed* interest rate is agreed for the *whole* maturity at time t_0 when the contract is signed.

Chart 9
Step-up loan

(y-axis: Outstanding amount (left-hand scale); Interest rate (right-hand scale))



An example of a step-up loan is given in Chart 9, where a four-year consumer credit is granted, for which the credit institution charges 5% interest in the first year, 7% in the second, 9% in the third and 13% in the fourth. The new business statistics cover the step-up loan at time t_0 in the category over 1 and up to 5 years initial rate fixation.

The interest rate on new business can either be computed as a geometric average of the factors “1 + interest rate” or as an NDER. The NDER for this example is 8.2446% and gives the mathematically correct result. The geometric average of the factors “1 + interest rate” provides an approximation. It is 8.46% for the example and calculated as follows:

$$MIR(NB) = \sqrt[4]{(1 + 0.05)(1 + 0.07) + (1 + 0.09)(1 + 0.13)} - 1 = 0.0845998 \quad [8]$$

Unlike the NDER, the geometric average does not take into account the timing of the interest rate payments. This means that the interest rates computed as a geometric average are the same for a step-up loan with 5% interest at time t_0 and up to 13% at t_3 and for a step-down loan with 13% at t_0 and down to 5% at t_3 . Therefore, the NDER is the method recommended in this and similar cases.

The statistics on *outstanding amounts* cover from time t_0 to t_3 the interest rates actually applied by the reporting agent at the time of calculation of the MFI interest rate, i.e. 5% at time t_0 , 7% at t_1 , 9% at t_2 and 13% at t_3 . These interest rates appear in the instrument category over 1 and up to 5 years maturity.

8.2 Revolving loans and lines of credit

As stated in Section 7.5.2, revolving loans also include lines of credit, given the similarities between both instruments. As defined in Regulation ECB/2013/33, a *line of credit* is an agreement between a lender and borrower that allows a borrower to take advances, during a defined period and up to a certain limit, and repay the advances, usually at his/her discretion, before a defined date. The following two questions are deemed relevant:

Case 1:

Question:

Considering a line of credit agreed between a customer and an MFI, which amount should be covered by the MIR statistics as new business in revolving loans and overdrafts? The maximum amount that the customer can take as advances or only the amount that has already been withdrawn by the customer and not yet repaid?

Answer:

Only outstanding amounts, i.e. amounts withdrawn and not yet repaid in the context of a credit line, are covered as new business in revolving loans and, therefore, reflected in the MFI interest rate statistics in accordance with the Section 5.2 description. Amounts available through a line of credit that have not been withdrawn or have already been repaid should not be considered in MFI interest rate statistics, either as new business or as outstanding amounts.

The same treatment is applied to *extended credit card credit*.

Note that the treatment of these instruments is different to that for loans in tranches where the whole amount of the loan granted, regardless of the way in which the customer draws upon it, has to be recorded as new business. The reason for this is

that in a loan in tranches, the whole amount of the loan would normally be drawn, but this is not the case for revolving loans, lines of credit or extended credit card credit, where there is a limit that may or may not be reached.

Case 2:

There are lines of credit under which some of the drawdowns are repaid not at the discretion of the borrower but according to a repayment plan, agreed at the time the drawdown takes place. Hence the maturity of such a drawdown is known.

Sometimes, these drawdowns have to be used for a specific purpose (e.g. financing the purchase of certain business equipment) agreed upon between the borrower and the lender.

By contrast, there are some loans that have all of the features of *revolving loans* except that:

- the borrower has to give notice before withdrawing funds and/or prove to the lender that the funds will be used for a specific purpose agreed upon in the contract (this requirement may apply to some but not all drawdowns);
- the drawdowns are repaid according to a repayment plan.

Question:

Should the different drawdowns be reported separately in such a way that those that do not follow the normal rules for a line of credit or a revolving loan are reported separately under an instrument category different from *revolving loans and overdrafts* and all other withdrawals taking place without notice or without any agreed time of redemption are reported under the category *revolving loans and overdrafts*?

Answer:

From a conceptual perspective, it is doubtful that if the contract has the characteristics of a line of credit or a revolving loan it could be split up and considered as several loan instruments. There is probably only a single interest rate, and only the conditions for making some withdrawals envisage several commitments for the customer. Also, for practical reasons, it needs to be taken into account that the classification of lines of credit as *revolving loans and overdrafts* is a special case in the sense that the calculations of the interest rates on new business and on outstanding amounts are the same. Therefore, splitting these kinds of loans would make the calculation of the interest rates very complicated. The case where, as a consequence of the different agreements on withdrawals, the operation has to be divided into two, three or more parts is still possible. Therefore, the Manual recommends the classification of the whole operation in only one instrument category: *revolving loans and overdrafts*.

8.3 Umbrella contracts

An “umbrella contract” allows the customer to draw loans on several types of loan accounts up to a certain maximum amount applying to all loan accounts together. At the time of the agreement on an umbrella contract, the form the loan will take, the date at which the loan will be drawn and/or the interest rate are not specified, but a range of possibilities may be agreed. These characteristics make umbrella contracts different from the case described in the last part of the previous section.

Question:

Should the initial amount agreed under the umbrella contract at t_0 be reflected in MIR statistics as new business and/or outstanding amounts?

Answer:

An umbrella contract, at the time it is agreed, is not covered by MFI interest rate statistics. However, as soon as a loan agreed under an umbrella contract is drawn, it should be included in the corresponding item in MFI interest rate statistics, both in new business and outstanding amounts.

8.4 Savings plans for housing loans

Question:

Savings plans for housing loans are long-term low return savings schemes that, after a certain period of saving, give the saver the right to a housing loan at a discounted rate. In MFI balance sheet statistics, these savings plans are classified under deposits with agreed maturity over two years. When the savings plan is transformed into a loan, this loan is classified as loan to households for house purchases. For the purpose of MFI interest rate statistics, reporting agents report as new deposit business the interest rate that is agreed at the time the initial deposit is placed. The corresponding amount of new business is the amount of money that has been placed. The increase of the amount on the deposit over time is only covered by the outstanding amounts. At the time when the deposit is transformed into a loan, this new loan is recorded as new lending business. The interest rate is the discounted rate that is being offered by the reporting agent. The weight is the total amount of the loan that is being granted to the household.

1. Which amount should be covered as new deposit business? Only the first tranche paid into the account, or the total amount of the deposit which has been agreed and which will be paid into the account in tranches over time?
2. Which amount on the deposit should be covered by outstanding amounts? The single tranche, which has been paid into the account in the reference month, or the cumulated amount of all tranches which have been paid into the account so far?

Answer:

Analogous to Section 5.4.5, the treatment in *new business* statistics depends on whether or not it is known for certain *ex ante* which amount will be held on the

deposit account at maturity. In general, savings plans for house purchases are highly flexible products and it is only known *ex post* what amount has been accumulated on the account and can be transformed into a loan or paid out to the customer. Hence, in general, the amount of new business is the initial amount of money that has been placed, i.e. the first tranche paid into the account. The corresponding interest rate for new business is the deposit interest rate that has been agreed for when the initial deposit is placed.

If it is known *ex ante* for certain what exact amount will be held on the account at maturity, then the total amount on the deposit should be recorded as new business.

In both cases, the *outstanding amount* is the stock of all deposits placed by the customer on the account. At the time of reporting, the MFI interest rate statistics on outstanding amounts therefore reflect the accumulated amount of all tranches that have been paid into the account so far and the corresponding interest rate.

8.5 Savings plans with a fidelity and/or growth premium

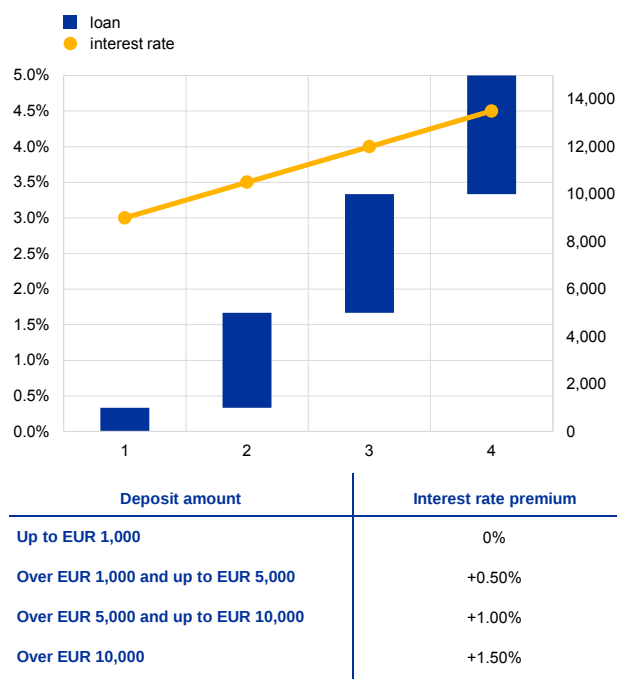
Savings deposits with a basic interest rate plus a fidelity and/or growth premium may exist. At the time the deposit is placed, it is not certain whether or not the premium will be paid. The payment depends on the future unknown saving attitude of the household or non-financial corporation.

Chart 10

Saving deposit with a growth premium

Outstanding amount

(left-hand scale: interest rate premium (percentage), right-hand scale: deposit amount (EUR))



Question:

Let us consider a five-year savings deposit with regular savings allowed and yearly interest payments. The minimum interest rate paid on this deposit is 3% and the premium depends on the total deposit amount, as presented in Chart 10.

The initial deposit amounts to EUR 2,500.

What interest rate should be considered in the MIR statistics on new business?

Answer:

The *new business* statistics cover the deposit at time t_0 in the category *deposits with agreed maturity over 2 years*. The convention is that such fidelity or growth premiums, as they depend on the future unknown saving attitude of the customer, are not included in the AAR on new business. Therefore, the interest rate on new business is 3.30%, calculated as

$$3.00\% \times \left(\frac{1,000}{2,500}\right) + 3.50\% \times \left(\frac{1,500}{2,500}\right)$$

The AAR on outstanding amounts always covers the

rates applied by the reporting agent at the time of calculation of MFI interest rates. Hence, if such a growth premium is granted by the reporting agent, this is reflected in the statistics on outstanding amounts.

8.6 Interest rate on zero coupon bond-like savings bonds

Question:

In some countries, certain non-marketable savings bonds are classified as deposits in MFI balance sheet statistics. These savings bonds are discounted zero coupon bond-like products involving only two cash flows: the initial placement of the deposit at a discounted value and the final redemption payment at nominal value which includes the interest. Which amounts should be considered as new business and outstanding amounts for the purpose of calculating interest rates on savings bonds? Should the initial value of the deposit placed in t_0 be reflected both as new business and outstanding amounts, with any accrued interest over the lifetime of the savings bonds being excluded? This treatment would be in line with the MFI balance sheet statistics, which requires accrued interest payable on deposits to be classified separately as *remaining liabilities*.

Answer:

If, for example, the discounted value of the savings bond is EUR 80 and the nominal value at which it is redeemed after two years is EUR 100, then at time t_0 the amount of EUR 80 is recorded as new business. The interest rate on new business is then 11.8034%. It may be calculated as an AAR like in Equation 9 or as NDER shown in Table 9.

Table 9

Savings bond with agreed maturity of two years, interest rate payment at end of second year

	t	Outstanding deposit	Interest rate p.a.	Interest payments	Repayments of principal	Cash flow	Discount factor = $(1+NDER)^{-t/365}$	Present value of cash flow	NDER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0	80				-80			
1Y	365	80	0%	0	0	0	0.894	0	11.8034%
2Y	730	0	25%	20	80	100	0.8	80	11.8034%
			Sum	20	80		RHS:	80	

$$X = \left(1 + \frac{\frac{100-80}{80}/2}{0.5} \right)^{0.5} - 1 = \left(1 + \frac{0.25/2}{0.5} \right)^{0.5} - 1 = 0.118034 \quad [9]$$

The amount of EUR 80 is also the *outstanding amount* from time t_0 until maturity, including the day of maturity where the bond is redeemed at EUR 100. The reason is

that for MFI interest rate statistics, the EUR 20 difference between the issuance and redemption value is interpreted as the interest payment for the two years and not as principal. The interest of EUR 20 is known *ex ante* and interpreted as accrued over the maturity of the bond, in this example over two years. Hence, 11.8034% is reflected as the interest rate on outstanding amounts for the whole period. In this way, the savings bond is treated just like a deposit with an agreed maturity of two years where the interest is fixed at 12.5% p.a. and paid at maturity.

8.7 Splitting of loans into two parts

Question:

A customer takes out a mortgage loan of EUR 50,000 for 20 years at a variable interest rate. It is agreed with the credit institution and laid down in the contract that at any point in time the customer may split the mortgage. For example, after three years the customer may choose to split it into two parts: EUR 20,000 at a fixed rate and EUR 30,000 at a variable rate. How would this split be treated in MFI interest rate statistics?¹¹⁴

Answer:

The possibility of the split is already agreed in the contract for the mortgage loan of EUR 50,000. The split does *not* constitute new business if the same contract already determines the terms and conditions of the two loans after a possible split, i.e. the amount of money that would be lent at variable and at fixed interest rate as well as the interest rates applied to these amounts. In this case, the customer is free to choose the timing of the split without engaging in renegotiation of the contract. The change in the interest rates from fully variable to partly fixed rate after the split is then only reflected in the statistics on outstanding amounts.

If the split of the mortgage loan into two parts implies new negotiation of the terms and conditions of the contract, for example the amount lent at variable and at fixed rate or the level of these interest rates, then *each* of the loans after the split, i.e. the mortgage loan of EUR 20,000 and of EUR 30,000, constitutes new business.

8.8 Option to convert a deposit into equity shares

Question:

A deposit with agreed maturity of one year is placed at a higher than market interest rate, currently for example at 5%, where at maturity the credit institution (not the customer) has the option of converting the deposit into a number of shares of a specific company. If at maturity the share price is high, the credit institution will not exercise the option, but pay the 5% interest and return the deposit. If at maturity the share price is low, then the credit institution will also pay the 5% interest and exercise the option. In this case, at the time of the conversion into shares, the

¹¹⁴ If part of the loan split is connected with debt restructuring (with rates below market conditions) that part is excluded from the MIR statistics.

customer will lose part of the deposit because the value of the shares has fallen. The interest rate is high because it includes a risk premium for the possibility of losing part of the capital. This instrument is also referred to as *reverse convertible*. How should this instrument be treated in MFI interest rate statistics?

Answer:

As there is no capital certainty for the deposit, it is considered that this product is closer to a financial instrument like securities than to a deposit. Therefore, it is not covered by MFI interest rate statistics on *new business*. The AAR or the NDER on outstanding amounts always covers the rates applied on the deposits by the reporting agent at the time of the calculation of MFI interest rates. Hence, if at maturity, the credit institution opts not to convert the deposit into shares and, as a consequence, pays the 5% agreed on the deposit, this interest rate paid will be reported in MFI interest rate statistics, whenever the method followed by the reporting agent is the *implicit rate referring to the average of the month to calculate the interest rate on outstanding amounts*. Note that the recording of the interest rate on outstanding amounts takes place only when the operation matures, not before, because before maturity no interest is paid. If, however, the credit institution exercises the option and, at maturity, converts the deposit into shares, the amount converted is *no longer a deposit* and hence is not included in the MFI interest rate statistics. Specifically, the interest rates on new business allow the monitoring of the effect of monetary policy decisions on the rates applied by MFIs to loans to households and non-financial corporations; therefore, the more the new business interest rates on loans and deposits reflect “true” market conditions, the better. In the example above, neither the 5% interest rate (where the option is not exercised) nor any other agreement at the time the contract is signed regarding the probable yield of the operation would reflect the market conditions for the deposit.

Another question relates to the different recording of such a deposit at the time it is agreed in MIR statistics (where there is no recording) and in balance sheet item (BSI) statistics (which do record the deposit). Two considerations are of interest here: (i) although it is advisable that the recording of instruments in the BSI statistics and in MIR statistics coincide as much as possible, achieving this aim should not go beyond a reasonable limit, taking into account what MIR statistics try to capture; and (ii) when a credit institution records this kind of deposit on its balance sheet, it has to record any derivative at its market price, according to International Financial Reporting Standards (IFRS). The Regulation does not currently include any such a provision regarding the calculation of interest rates.

8.9 Interest rate linked to a share price

Question:

A deposit is agreed where the credit institution does not guarantee any interest rate but the return on the deposit is entirely linked to the stock market price of shares in a specific company. If, for example, the share price rises by 10%, the credit institution will pay 20% interest on the deposit to the customer. However, if the share price falls

by 30%, then the customer loses 30% of the money placed as a deposit. How should this instrument be treated in MFI interest rate statistics?

Answer:

As in Section 8.8, this instrument is not covered in *new business* in MFI interest rate statistics, because there is no capital certainty for the deposit.¹¹⁵ The AAR or the NDER on *outstanding amounts* covers the interest rate applied by the reporting agent at the time of the calculation of MFI interest rates, i.e. it should be based on the stock market price of the shares of the specific company at the time of calculation.

8.10 Treatment of a deposit comprising two components¹¹⁶

Question:

A customer and a credit institution agree on a deposit of EUR 10,000 comprising two parts. These two parts are inextricably linked and cannot be placed separately. The first part of EUR 6,000 is placed with an agreed maturity of six months at a (higher than market) fixed interest rate of 15% paid at monthly frequency. The second part of EUR 4,000 is placed with an agreed maturity of three years and the return is linked to a stock exchange index with a guaranteed minimum return of 0%. How should this product be treated in MFI interest rate statistics? Would the treatment change if the 0% interest, i.e. the minimum return, on the second part of the deposit were not guaranteed, implying the possibility of a capital loss for the investor?

Answer:

Paragraph 7 of Part 12d of the Guideline reads as follows: “Deposits may be offered comprising two components: a deposit with agreed maturity to which a fixed interest rate is being applied and an embedded derivative with a return that is linked to the performance of a defined stock exchange index or a bilateral exchange rate, subject to a minimum guaranteed return of 0%. The maturity of both components may be the same or may differ. The AAR on new business covers the interest rate for the deposit with agreed maturity, as it reflects the agreement between the depositor and the reporting agent and it is known when the money is being placed. The return on the other component of the deposit linked to the performance of a stock exchange index or a bilateral exchange rate is only known *ex post* when the product matures and therefore cannot be covered by the new business rate. Hence, only the guaranteed minimum return (usually 0%) should be captured. The AAR on outstanding amounts always covers the interest rate applied by the reporting agent at the time of the calculation of MFI interest rates. Until the day of maturity, the rate on the deposit with

¹¹⁵ This is different to Section 5.4.13 where a floor of 2% is agreed as a minimum return and to Section 8.10 where a minimum return of 0% is agreed for the second part of the deposit.

¹¹⁶ This section does *not* cover financial products where the first component is a deposit and the second component an investment in mutual fund shares/units or capitalisation products offered by insurance companies. For these financial products only the amount and the interest rate relating to the first component, i.e. the deposit, is covered by MFI interest rate statistics. The amount and the interest rate of the second component are outside the scope of MFI balance sheet statistics and are not covered by MFI interest rate statistics. In general, for these financial products the interest rate offered for the first component, i.e. the deposit, is close to market interest rates.

agreed maturity is captured as well as the guaranteed minimum return on the deposit containing the embedded derivative. Only at maturity do the MFI interest rates on outstanding amounts reflect the AAR that is paid by the reporting agent.”

Hence, according to the Regulation, *both parts* of the deposit are covered by MFI interest rate statistics, i.e. the first part of EUR 6,000 at 15% for a term of six months, and the second part of EUR 4,000 at the guaranteed 0% for three years. However, the Regulation is silent about the precise treatment of the two parts, i.e. if they should be treated as two separate deposits or as a single deposit for the purpose of calculating MFI interest rates. If both parts were at the same maturity and would hence fit into the *same instrument category* for MFI interest rate statistics, no question would arise, as it would lead to the same result whether both parts were treated separately or together.

If the two parts have different maturities, as in the example, the two parts of the deposit are classified under *two different instrument categories*. The two parts should, however, be looked at together, because together they form one contract and could not be placed independently of each other, and hence the interest rates on the two parts need to be seen as a “package”. For such products, either the NDER is calculated for the two components or, as an approximation, a weighted average of the AAR is calculated, although the application of the NDER is more suitable for this kind of product.

For example, the calculation of the AAR is given in Equation 10 and the calculation of the NDER is shown in Table 10.

$$\left[\left(1 + \frac{0.15}{12} \right)^{12} - 1 \right] * \frac{6000*6}{6000*6+4000*36} + 0 * \frac{4000*6}{6000*6+4000*36} = 3.2151\% \quad [10]$$

Table 10

Deposit with two components: EUR 6,000 at 15% for 6 months and EUR 4,000 at 0% for 36 months

	t	Outstanding deposit	Interest rate p.a.	Outstanding deposit	Interest rate p.a.	Interest payments	Repayments of principal	Cash flow	Discount factor = $(1+NDER)^{-t/365}$	Present value of cash flow	NDER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	0	6,000		4,000				-10,000			
1YM1	30.42	6,000	15%	4,000	0%	75		75	0.997	74.81	3.1370%
1YM2	60.83	6,000	15%	4,000	0%	75		75	0.995	74.61	3.1370%
1YM3	91.25	6,000	15%	4,000	0%	75		75	0.992	74.42	3.1370%
1YM4	121.67	6,000	15%	4,000	0%	75		75	0.990	74.23	3.1370%
1YM5	152.08	6,000	15%	4,000	0%	75		75	0.987	74.04	3.1370%
1YM6	182.50	0	15%	4,000	0%	75	6,000	6,075	0.985	5,981.9	3.1370%
1YM7	212.92	0		4,000	0%	0		0	0.982	0	3.1370%
1YM8	243.33	0		4,000	0%	0		0	0.980	0	3.1370%
1YM9	273.75	0		4,000	0%	0		0	0.977	0	3.1370%
1YM10	304.17	0		4,000	0%	0		0	0.975	0	3.1370%
1YM11	334.58	0		4,000	0%	0		0	0.972	0	3.1370%
1YM12	365	0		4,000	0%	0		0	0.970	0	3.1370%
2YM1	395.42	0		4,000	0%	0		0	0.967	0	3.1370%
2YM2	425.83	0		4,000	0%	0		0	0.965	0	3.1370%
2YM3	456.25	0		4,000	0%	0		0	0.962	0	3.1370%
2YM4	486.67	0		4,000	0%	0		0	0.960	0	3.1370%
2YM5	517.08	0		4,000	0%	0		0	0.957	0	3.1370%
2YM6	547.50	0		4,000	0%	0		0	0.955	0	3.1370%
2YM7	577.92	0		4,000	0%	0		0	0.952	0	3.1370%
2YM8	608.33	0		4,000	0%	0		0	0.950	0	3.1370%
2YM9	638.75	0		4,000	0%	0		0	0.947	0	3.1370%
2YM10	669.17	0		4,000	0%	0		0	0.945	0	3.1370%
2YM11	699.58	0		4,000	0%	0		0	0.943	0	3.1370%
2YM12	730	0		4,000	0%	0		0	0.940	0	3.1370%
3YM1	760.42	0		4,000	0%	0		0	0.938	0	3.1370%
3YM2	790.83	0		4,000	0%	0		0	0.935	0	3.1370%
3YM3	821.25	0		4,000	0%	0		0	0.933	0	3.1370%
3YM4	851.67	0		4,000	0%	0		0	0.930	0	3.1370%
3YM5	882.08	0		4,000	0%	0		0	0.928	0	3.1370%
3YM6	912.50	0		4,000	0%	0		0	0.926	0	3.1370%
3YM7	942.92	0		4,000	0%	0		0	0.923	0	3.1370%
3YM8	973.33	0		4,000	0%	0		0	0.921	0	3.1370%
3YM9	1,003.75	0		4,000	0%	0		0	0.919	0	3.1370%
3YM10	1,034.17	0		4,000	0%	0		0	0.916	0	3.1370%
3YM11	1,064.58	0		4,000	0%	0		0	0.914	0	3.1370%
3YM12	1,095	0		0	0%	0	4,000	4,000	0.911	3,645.99	3.1370%
			Sum			450	10,000		RHS:	10,000	

At the time of agreement on the contract, the compiled average interest rate is reflected both as *new business* at six months' maturity for an amount of EUR 6,000

and as *new business* at three years' maturity for an amount of EUR 4,000, with the interest rate for both instruments being the resulting NDER or the AAR, as calculated in Equation 10. The MFI interest rate statistics on *outstanding amounts*, at the time of the placement of the deposit, also reflect the average interest rate based on the minimum guaranteed return on the two components of the deposit. Hence, in this example the interest rate on outstanding amounts both at six months maturity for an amount of EUR 6,000 and at three years maturity for an amount of EUR 4,000 reflect the average interest rate as compiled above until the respective part of the deposit reaches maturity. A higher than 0% interest rate that is paid by the reporting agent at maturity of the second part of the deposit is only reflected in the interest rate on outstanding amounts for this instrument category at maturity, whenever the method applied is the *implicit rate referring to the average of the month*. As always, the interest rate needs to be annualised, i.e. it has to be taken into account that the interest paid at maturity on the EUR 4,000 is an one-off payment after 36 months.

If there is no capital certainty for the second component of the deposit, the treatment in MFI interest rate statistics for *new business* and for *outstanding amounts* is the same as in Section 8.9.

8.11 Pension savings accounts

Deposits with a maturity of over two years as defined in Part 2 of Annex II to Regulation ECB/2013/33 may contain pension savings accounts. The main part of pension savings accounts may be placed in securities and the interest rate on the accounts then depends on the yield of the underlying securities. The remaining part of pension savings accounts may be held in cash and the interest rate should be determined by the MFI in the same way as for other deposits.

At the time when the deposit is placed, the total return to the household from the pension savings account is not known and could also be negative. In addition, at the time the deposit is placed, an interest rate is agreed between the household and the MFI which applies only to the deposit part (not to the part invested in securities). Hence, only the deposit part that is not invested in securities is covered by MFI interest rate statistics. The AAR on new business that is reported is the rate agreed between the household and the reporting agent for the deposit part at the time the deposit is placed. The AAR on outstanding amounts is the rate applied by the reporting agent to the deposit part of the pension savings accounts at the time of calculation of the MFI interest rate.

8.12 Purchase of mortgage loans by a credit institution

Question:

A credit institution acquires the economic but not legal ownership of mortgages that are granted to households by a (related) life insurance corporation. The mortgages in question have different starting dates and are transferred normally in small, sometimes in large, portions from the life insurance corporation to the credit

institution. Originally, the life insurance corporation grants the mortgage loans. It is in fact selling mortgages through its network to households and these mortgages are funded or refinanced by the credit institution. The amount paid by the credit institution to the life insurance corporation is the going market rate at the time of the purchase of the mortgage loans and includes, among others, a fee for handling the mortgage administration and collection of payments by the life insurance corporation. The customer pays the interest for the mortgage loan directly to the insurance company and not to the credit institution. In MFI balance sheet statistics, the credit institution records these (purchased) mortgage loans as mortgage loans extended to households. Is this type of transfer of mortgage loans new business? If it is, which interest rate should be reported for new business and outstanding amounts?

Answer:

The key for the treatment of such loans in MFI interest rate statistics is their recording in MFI balance sheet statistics. The mortgage loans are originally granted by the insurance company and therefore initially appear on the books of the insurance company and not of the credit institution. There is in fact *no* contractual relationship between the household and the credit institution, only between the household and the insurance company. The latter is beyond the scope of MFI interest rate statistics on *new business*, as the insurance company is obviously not a credit institution and therefore not included in the reference reporting population¹¹⁷ of the Regulation.

Once the credit institution purchases the mortgage loans, however, a loan to households for house purchases is recorded in the books of the credit institution. At this point in time, the interest rate actually paid by the household for the mortgage loan is recorded in the MFI interest rate statistics on *outstanding amounts*. The purchase of the loans by the credit institution does not constitute new business because there is no active involvement of the household in the purchase or transfer of the loans from the insurance company to the credit institution. As these mortgage loans are covered in MFI balance sheet statistics under loans to households for house purchases, they are also included in the weighting information which is used to calculate the euro area interest rate for outstanding housing loans to households.

8.13 Securitisation of mortgage loans by a credit institution

Question:

A credit institution transfers the economic but not legal ownership of mortgage loans that it has granted to households to a financial vehicle corporation. Analogous to Section 8.12, the mortgages in question have different starting dates and are transferred normally in small, sometimes in large portions from the credit institution to the financial vehicle corporation. Originally, the credit institution grants the mortgage loans and records them as loans to households for house purchases in MFI balance sheet statistics. Once the mortgage loans are sold to the financial

¹¹⁷ Defined in Chapter 3 and further discussed in Section 12.1.

vehicle corporation, the loans no longer appear in the MFI balance sheet of the credit institution. How should this type of securitisation be treated in MFI interest rate statistics?

Answer:

As in Section 8.12, the key for the treatment of securitisation in MFI interest rate statistics is the recording in MFI balance sheet statistics. The mortgage loans are originally granted by the credit institution to the household and constitute new business at the time of agreement on the contracts. They are hence reflected as loans to households for house purchases in the MFI interest rate statistics on *new business* and also appear at that time in MFI interest rate statistics on outstanding amounts.

However, once the credit institution sells the mortgage loans to the financial vehicle corporation, along with all the rights and returns associated with the loans, the loans disappear from the books of the credit institution. At that point in time, they are removed from the MFI balance sheet of this institution and also no longer covered in MFI interest rate statistics on outstanding amounts. The transfer of the loans to the financial vehicle corporation does not constitute new business for MFI interest rate statistics.

8.14 Payday loans

Payday loans are very short-term micro loans that credit institutions and other financial institutions offer to their customers, usually households, with the purpose of bridging the gap between one salary and another. The credit institutions charge very high fees. At maturity, the customer pays the fee and repays the loan. A rollover of the principal is not allowed.

Question:

As the charge that the credit institution applies to these loans is a fee, should they be included in MFI interest rate statistics? And, if so, how should these loans be classified? Another question is, assuming that these loans are included in MFI interest rate statistics, is it necessary to apply special recording rules, given the sizeable distortion of credit aggregates in some countries caused by such loans?

Answer:

First, the characteristics of the high fee charged need to be analysed. If the fee is very high compared with the fees that credit institutions charge on other loan instruments, it is doubtful that it can be considered as such. However, if that charge is just a fee, the loans would be granted at a 0% interest rate, which may not make sense. Therefore, in these operations, the fee has to be considered as an interest rate, unless the underlying “true” fee can be disentangled from the interest rate. This, together with the other characteristics of payday loans, lead to the conclusion that they must be recorded both in the NDER/AAR and the APRC figures, with the most appropriate classification being *loans for consumption*, given the fact that they are granted to bridge the gap between one salary and another and that, very probably,

only a very urgent need for these loans, like consumption, would justify paying such high fees. In addition, the low amounts usually involved in such loans support such a classification.

As the inclusion of these loans in MFI interest rate statistics could cause a significant distortion in the aggregates, a possible solution would be to report the payday loans under a separate category, but this option lacks legal support to oblige the reporting agents to differentiate this type of loan from the rest. The evidence gathered to date shows that the distortion is undoubtedly reflected in the statistics of countries where the weight of payday loans in the total consumption loan amount is very high. In other countries, such a distortion is not apparent, either because the institutions granting this type of loan are classified as other financial institutions (OFIs) and are thus not subject to reporting for MFI interest rate statistics, or because the amounts involved are very low compared with the rest of loans or because these types of loans do not exist. As this phenomenon is relatively recent, this Manual recommends the following provisional solution: in countries where payday loans have a significant impact on interest rates on consumer credit, *they should be excluded from the current MIR statistical breakdowns and included as a separate category*. It would be the responsibility of the NCBs in these countries to collect the separate information on these loans from the reporting agents on a best-efforts basis.

8.15 Restricted deposits

Restricted deposits are deposits that may be transferred from current or giro accounts only for a specific purpose. Most restricted deposits have characteristics of transaction accounts for specific purposes and an interest rate around 0%. Some others are similar to deposits with agreed maturity with rates close to the rates applied to the normal ones. The relative importance of the characteristics of the restricted deposits depends on the country. The restriction on these deposits is on the customer, who cannot withdraw them for other purposes than those specified when they are deposited. In addition, the specific purpose of the restriction varies from country to country.

Question:

Should the restricted deposit be recorded in MFI interest rate statistics and, if so, in which instrument category?

Answer:

According to Regulation ECB/2013/33 (Annex I, Part I, Section 1), deposits are amounts which are owed to creditors by reporting agents and which are not negotiable instruments and, therefore, not marketable. They combine the features of transferability, convertibility and certainty (in terms of their nominal value).¹¹⁸ Furthermore, the Regulation, like the European System of Accounts 2010, distinguishes between transferable and non-transferable deposits, but nothing is said specifically about restricted deposits; it is only mentioned that, regarding the

¹¹⁸ See also Section 2.1.2 of the Manual on MFI balance sheet statistics.

category *deposits with agreed maturity*, “This item also includes administratively regulated savings deposits where the maturity related criterion is not relevant (classified in the maturity band “over two years”).” Nonetheless, as mentioned above, restricted deposits comprise, in some countries, a wide variety of deposits and the rules for their use are very different across countries. Therefore, when deciding on the classification of restricted deposits, this Manual recommends taking into account the following issues:

- Restricted deposits can be classified either as *remaining liabilities* or as *deposits* in BSI statistics. The dividing line depends on whether the credit institution can invest the funds raised without restrictions or not. If restricted, they should be classified as *remaining liabilities*, otherwise as deposits.
- If classified as *deposits*, it has yet to be decided if their inclusion would be as *deposits with agreed maturity* over two years if the deposits qualify as *administratively regulated savings deposits* or as *non-transferable deposits* within the category *overnight deposits* as these deposits usually do not have a predetermined maturity.
- The main problem with the classification of these special deposits as *with agreed maturity over two years* is that this would imply their exclusion from M3 in the euro area, should the country be a Member State, or from the monetary aggregates of the country, if this country follows the same definition of broad money as the one used for the euro area.

All in all, it seems that the classification of restricted deposits as *overnight non-transferable deposits* better matches the role they play in the economy. In any case, the classification as deposits implies that the credit institution can invest the funds raised without any restriction; if this is not the case, they should be classified as *remaining liabilities*.

8.16 Cash pooling

Cash pooling¹¹⁹ is a bank service that allows corporates to externalise intragroup cash management in order to manage their global liquidity effectively and with lower costs. Recently, it has become increasingly relevant in western and northern European countries. There are three types of cash pooling:

- A single legal account cash pool consists of transaction accounts, which are often directly used by the individual entities and the parent company for their daily operations, and a top account, which consolidates the funds of the group. Under such a scheme, only the top account constitutes an obligation of the bank vis-à-vis the beneficiary and consequently the interest rate is calculated on the top account only.

¹¹⁹ See also “The statistical classification of cash pooling activities”, *Statistics Paper Series*, No 16, European Central Bank, July 2016 [Statistics Paper Series](#).

- In a physical cash pool, all accounts that are part of the cash pool represent a resource or an obligation of the bank vis-à-vis the entities and the interest rate is calculated on all accounts separately.
- A notional cash pool comprises accounts that represent a resource or an obligation of the bank vis-à-vis the entities as in a physical cash pool, but under this scheme no liquidity transfers take place between the individual accounts. The pooling is done on a notional top account created by the bank that virtually consolidates the positions of the pool participants, but does not represent itself a resource or an obligation of the bank. The interest rate is calculated on the net amount recorded on the notional account and is then distributed (at market conditions, but without margins) among the participants.

Question:

How should cash pooling be treated in MFI interest rate statistics?

Answer:

The overall reporting in MIR statistics should follow the practices adopted in MFI BSI statistics, namely the gross recording of positions within a cash pool arrangement.

8.17 Treatment of factoring and the calculation of the AAR/NDER for very short-term loans

Factoring is a financial operation where a firm (factoring client) sells its invoices to a factoring company (which might be an MFI). In the case of *recourse factoring*, the factoring company purchases the invoices at a price that is less than the face value of the invoices. The discount is kept as collateral to cover any risks associated with the operation. After the customers have paid the invoices, the factoring company transmits the receivables net of the advanced cash (and the applicable fees and interest) to the factoring client. In the case of *non-recourse factoring*, the fees and interest are charged immediately to the factoring client, which receives the full face value of the invoices net of these charges. In this type of factoring, the factoring company fully assumes the risk of non-payment by the customer; therefore, the fees and interest are higher. In particular, if the interest rate is calculated based on the difference between the face value of the invoices and the price paid by the factoring company, the annualised rate is very high, which has a visible impact on national aggregated interest rates. The annualised rate does not however reflect the true cost of the loan to the company, as these loans are typically of very short maturity (from a few days to a few weeks). Thus, it could be argued that the annualised rate of these loans should not be included in the national MIR aggregates.

Question:

How should factoring, and in particular non-recourse factoring, be treated in MIR statistics and how should the AAR/NDER be recorded for very short-term contracts?

Answer:

The case is very similar to payday loans¹²⁰, which are excluded from MIR aggregates and reported separately if they have an impact on national aggregates. Nevertheless, as the impact of factoring and other short-term loans is clearly smaller, it is recommended to include these loans in the calculation of national aggregated interest rates and to annualise the interest rates charged using the standard formulae.

8.18 Treatment of student loans without a definite maturity

In the case of student loans without a definite maturity, the full loan amount is not known at the start of the contract, but instead the maximum amount per year is limited to a certain predefined amount. In addition, the number of times the amount can be withdrawn depends on the length of the studies. The interest rate is fixed for the whole time. In the first year, the student submits the loan application to the bank and signs the loan agreement. In the following years, there is no need to reapply if it has been noted in the loan application that in the subsequent academic years the student would like the loan amounts to be automatically transferred to his/her account, assuming that all of the conditions have been met. The student can also refuse any new loan instalments, in which case the additional amounts are not automatically paid out. After this, the student needs to submit a new loan application to the bank (no new agreement is signed) for any new instalments. The loan is repaid on the basis of the schedule prepared by the bank and starts no later than 12 months after the student has graduated or left the educational institution for any other reason. The repayment period is twice as long as the duration of the studies according to the curriculum, but no more than 20 years.

Question:

Should the amount withdrawn each year be reported as new business only or should it be reported also as a renegotiation? What amount has to be reported as a renegotiation?

Answer:

The change in the loan amount is clearly a change in the terms and conditions of the contract. Thus, the amount withdrawn each year should be reported as a renegotiation.

8.19 Treatment of convertible deposits

At the beginning of the contract, a deposit in euro with an agreed maturity is placed and an interest rate is agreed to be paid at maturity. However, at maturity, depending on whether, for example, the EUR/USD exchange rate exceeds a strike rate agreed in the contract or not, the payback (including the interest) is done in euro or US

¹²⁰ See also Section 8.14.

dollars. Alternatively, the interest rate might be linked to an external index, such as the EURIBOR.

Question:

How should convertible deposits be recorded in MFI interest rate statistics?

Answer:

Regarding the treatment of the new business in convertible deposits, there is no capital certainty for the deposits; it is thus considered that these products are more like financial instruments such as securities than deposits. Therefore, they are not covered by MFI interest rate statistics on new business. If at maturity the interest is paid in euro, it should be reported under outstanding amounts in MIR statistics.

8.20 Leasing contracts

Leasing contracts are financial contracts between a lessor (owner) and lessee (user) that give the lessee rights to use property owned by the lessor for a predefined period.

Question:

How should leasing, and in particular leasing contracts purchased from a leasing company, be treated in MIR statistics?

Answer:

Leasing contracts should be reported under loans in MIR statistics and new leasing contracts should thus be included in new business. Contracts that are purchased from a non-MFI leasing company by a bank should be reported under new business, but not as renegotiated loans as these loans are transferred from outside the MFI sector¹²¹. The reasoning behind this is that while recording the transferred loans under renegotiations would be correct for the analysis of the credit market as a whole, within the MFI sector these loans are “pure new loans”. Nevertheless, if the analysis of the credit market refers to the whole economy, the exclusion of these operations from renegotiations can be a significant drawback, should the figures of these operations be relevant.

8.21 Recording of syndicated loans

Syndicated loans are loans granted by a group of lenders (referred to as a syndicate) that together provide funds for a single borrower. The loan is usually arranged and coordinated by one institution (often called the “lead manager”). Each participant, including the lead manager, records its share of the loan vis-à-vis the borrower, i.e. not vis-à-vis the lead manager, on its balance sheet. The recording of syndicated loans in MIR statistics should however be clarified, in particular for the recording in new business.

¹²¹ See also Section 5.5.4.

For example, three banks (A, B and C) grant a loan to an NFC of EUR 1.5 million. Bank A grants 1.1 million, bank B grants 0.3 million and bank C grants 0.1 million.

Question:

What is the new business volume and interest rate recorded by bank B? In which category is this loan recorded?

Answer:

The new business volume reported by bank B is EUR 300,000, as this is the amount that has been granted and which is in the contract for bank B. However, different practices exist regarding the category in which the new business volume and corresponding rate are reported: (i) the loan could be reported in the category of new loans to NFCs of an amount above EUR 1 million, that is to say according to the size of the whole syndicated loan; or (ii) in the category of loans to NFCs of an amount above EUR 0.25 million and below EUR 1 million, that is to say according to the amount actually granted by bank B.

The terms and conditions of the syndicated loan, including the interest rate, are determined on the basis of the credit risk associated with this loan, which depends on the borrower and on the full amount of the loan, not on the tranche that a participating bank grants. It is standard practice that the full amount of the loan has a single interest rate without any differentiation among participating banks. Therefore, in this case, the interest rate reported by each of the banks will be the same and is expected to be, in terms of its level, close to the rates offered for loans above EUR 1 million. For this reason and because of the nature of syndicated loans, it could make sense for each bank to report the amount granted (for bank B, EUR 300,000) in the category of the syndicated loan (above EUR 1 million).

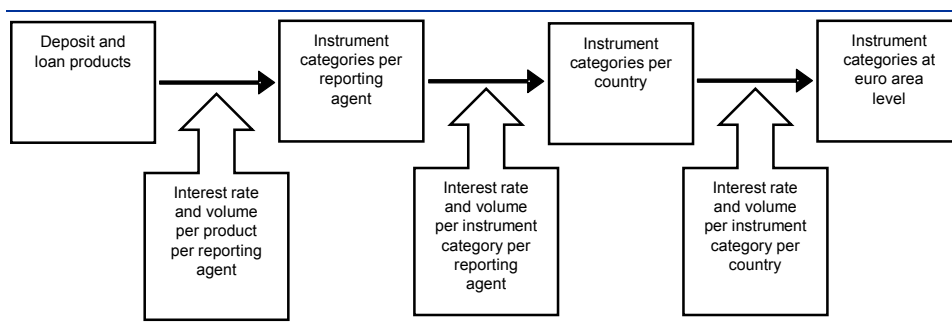
In the example given, if banks were to categorise the loan according to the amount granted, bank C would record this loan in the category *up to EUR 0.25 million*, which might distort the national aggregate for that category given how the conditions of this loan are determined. In addition, if the size of the loan is used as a proxy for the size of the firm, one would conclude that a loan of EUR 0.1 million was granted to an SME. Although this Manual recommends categorising the loan according to the size of the syndicated loan, it is acknowledged that it may be more difficult for reporting agents to identify the conditions of such loans compared with more standard loans and therefore, although not optimal, the practice of categorising the syndicated loans according to the amount granted is accepted for practical reasons.

9 Aggregation of the data and reporting obligations¹²²

9.1 Overview

To derive euro area aggregates for each of the instrument categories in Tables 1 to 9 of the Appendix, three levels of aggregation are necessary: the first at the level of the reporting agents, the second at that of the NCBs and the third at the ECB level. The three levels are illustrated in Figure 3.

Figure 3
Aggregation of the data and reporting obligations



The starting point for the compilation of MFI interest rate statistics is the individual deposit and loan products within the reporting agents. As a first step, each reporting agent collects data on all relevant products, aggregates them as appropriate and sends them to the NCB of the Member State in which it is resident. In general and as indicated in Figure 3,¹²³ each reporting agent provides for each instrument category one average interest rate referring to the reporting agent as a whole. In the case of new business it also provides the volume of the new deposits and loans.

As a second step in aggregation, each NCB compiles, for each instrument category, a weighted average interest rate for each instrument category referring to the Member State as a whole and reports it to the ECB. In the case of new business, the NCB also reports the volume of the new contracts at national level.

The ECB carries out the third and last step of aggregation by compiling, for each instrument category, a weighted average interest rate referring to the euro area as a whole. The reporting obligations are discussed in more detail in the following sections.

¹²² This chapter refers mainly to Part 5 of Annex I to the Regulation.

¹²³ NCBs may also choose the compilation of implicit rates (see Section 6.1) or require reporting agents to provide data on the level of individual deposit and loans. In both cases the reporting obligations differ from those illustrated in Figure 3.

9.2 Statistical information at the level of the reporting agents¹²⁴

Each reporting agent needs to submit the data collected for MFI interest rate statistics to the NCB of the Member State in which it is resident.

As explained in Section 5.2, MFI interest rates on *outstanding amounts*, i.e. indicators 1 to 26 in Table 1, may be compiled as a snapshot of end-month observations or as implicit rates referring to the average over the month. The same applies to overnight deposits, *deposits redeemable at notice extended credit card credit and revolving loans and overdrafts* i.e. indicators 1, 5, 6, 7, 12, 23, 32 and 36 in Table 2 and indicators 86 and 87 in Table 8. It is up to the NCBs to decide which of the two methods is better suited to the national context. The data that reporting agents need to provide to the NCB depend on the chosen method:

- In the case of a *snapshot* of end-month observations, the reporting agents need to provide, for each instrument category, a weighted average interest rate referring to the last day of the month. The weighted average interest rate covers all outstanding deposits that have been placed and not yet withdrawn by customers or all outstanding loans that have been withdrawn and not yet repaid by customers in all the periods up to and including the reporting date.¹²⁵
- In the case of *implicit rates* referring to the average of the month, reporting agents provide for each instrument category the accrued interest payable or receivable during the month and the stock of deposits and loans on average during the same month.

As indicated in the corresponding tables, 1 to 9, for each instrument category where AAR or NDER is required, except for indicators 1, 5, 6, 7, 12, 23, 32 and 36 in Table 2 and indicators 86 and 87 in Table 8, all reporting agents need to provide a weighted average interest rate. This weighted average interest rate refers to all interest rates on new business operations in the instrument category during the entire reference month.¹²⁶ Also, as indicated in the corresponding tables, the reporting agents need to report the volumes of new business and, in the case of the indicators in Table 6, also the amounts of renegotiated loans. Reporting agents do not need to provide the amount of new business for loans to households for consumption and for house purchase compiled as APRC, i.e. indicators 30 and 31 in Table 5. These amounts can be derived as aggregates from the more detailed data that are provided for the other new business rates.

Instead of asking reporting agents to provide weighted average interest rates on new business and the corresponding volume referring to the institution as a whole, NCBs may also request data at the level of individual deposits and loans.

¹²⁴ See also paragraphs 66 to 72 of Annex I to the Regulation.

¹²⁵ Bad loans and loans for debt restructuring at rates below market conditions are excluded. See also Section 5.1.

¹²⁶ See also Section 6.2.

NCBs may allow MFIs which are resident in a single national territory and individually included in the list of MFIs to report MFI interest rate statistics *together as a group*.¹²⁷ The group then becomes a *notional* reporting agent and has the same reporting requirements as the other (individual) MFIs that are reporting agents. So they have to provide the data on outstanding amounts and new business as defined in this section referring to the group as a whole. In addition they need to report every year for each instrument category the number of reporting institutions in the group and the variance of interest rates across these institutions. The number of reporting institutions and the variance should refer to the month of October and be transmitted with the October data.

9.3 National weighted average interest rates and national total business volumes¹²⁸

NCBs receive the data from the reporting agents and aggregate them to MFI interest rate statistics at the national level. These data are then submitted to the ECB:

- For each instrument category on *outstanding amounts*, and for each instrument category on *new business*, each NCB provides a weighted average interest rate referring to the Member State as a whole. Interest rates on outstanding amounts are weighted using outstanding amounts as weights. As regards indicators 15 to 26 in Table 1 of Appendix 1, outstanding amounts are only transmitted to the ECB at a monthly frequency. If the NCB does not have the data available at a monthly frequency, the data shall be carried forward into the missing periods by repeating them or by applying appropriate statistical techniques to reflect any trend in the data or seasonal pattern.
- In addition, each NCB provides for each of the *new business* indicators, except for overnight deposits, deposits redeemable at notice, extended credit card credit and revolving loans and overdrafts the amount of new business conducted at national level in each instrument category during the reference month. These amounts of new business refer to the *population total*, i.e. to the entire reference reporting population, not only to the sample, i.e. the actual reporting population.¹²⁹ Therefore, where a sampling approach is chosen at national level for selecting the reporting agents, the NCB must apply expansion factors at national level to derive the population total for the amount of new business. The computation of selection probabilities and their use as *expansion factors* for deriving population totals is explained in generic terms in Section 12.7.

The NCBs provide the interest rates on outstanding amounts and on new business to the ECB with a detail of four decimal places, i.e. 12.3456%. The level of detail at

¹²⁷ Further discussed in Section 12.6.

¹²⁸ See also paragraphs 33 to 44 in Part 14 of Annex II to the Guideline.

¹²⁹ The reference and actual reporting population is defined in Chapter 3 and further discussed in Section 12.1.

which the NCBs wish to collect the data from the reporting agents is up to them to define. The published ECB results do not contain more than two decimal places.

Together with the national data, NCBs need to provide methodological notes¹³⁰ that document any important special national practices, comprising regulatory arrangements, national conventions, institutional arrangements and specific products affecting MFI interest rate statistics. This information is essential in order to interpret the level and the development of the deposit and lending rates set by MFIs.

NCBs carrying out a sampling approach for the selection of the reporting agents also provide an estimate of the sampling error for the initial sample. A new estimate is required after each revision¹³¹ of the sample. The sampling error depends on the national sampling method used, i.e. the stratification, the sample size and its allocation, and the way the reporting agents are selected in each stratum.

9.4 Aggregated results for the euro area¹³²

The ECB carries out the final level of aggregation of the instrument categories for each euro area Member State to euro area MFI interest rate statistics. It compiles weighted average interest rates for each instrument category referring to the euro area as a whole:

- In the case of *outstanding amounts*, i.e. indicators 1 to 26 in Table 1, and *overnight deposits, deposits redeemable at notice, extended credit card credit and revolving loans and overdrafts*, i.e. indicators 1, 5, 6, 7, 12, 23, 32 and 36 in Table 2 and indicators 86 and 87 in Table 8, the weighting information is derived from the MFI balance sheet statistics. The interest rates on outstanding amounts compiled as a snapshot of end-month observations have the same time reference point as MFI balance sheet statistics, whereas implicit rates refer to the average over the month. Independent of the compilation procedure at national level, the ECB uses the data on the size of each balance sheet item at the end of the month in each Member State to calculate from the national interest rates weighted averages for the euro area.
- In the case of *new business other than overnight deposits, deposits redeemable at notice, credit card debt and revolving loans and overdrafts*, the weighting information is provided by the NCBs, which collect the data from the reporting agents.

The system of interest rates and weighting information is fully additive, in order to allow combinations of rates such as synthetic deposit and lending rates.

¹³⁰ Their content is further discussed in Section 4.3.2.

¹³¹ Further discussed in Section 12.8.

¹³² Further discussed in Section 12.2.

10 Validation rules

Some linear constraints can be identified within the MIR dataset. Together with the NCBs, it has been decided to clearly identify those constraints and to implement them, wherever possible, as validation rules.

Validation rules can be implemented either at the level of data reception in the form of automatic rejection or warnings and/or after data have been received. It should be emphasised that such validation rules are valid for reporting agents reporting the MIR indicators exactly as specified in the Regulation. For reporting agents reporting MIR data in whole or in part at a more granular level, those validation rules may not apply as such. In this case, the NCBs concerned apply different checks tailored to their national collection systems.

The list of validation rules by rule category is provided below:

- For countries not granting a derogation to reporting agents for the reporting of the APRC for consumer credit and loans to households for house purchase vis-à-vis non-profit institutions serving households (NPISHs), in other words, for those countries that collect the APRC vis-à-vis households including NPISHs, the APRC should be higher than or equal to the AAR:

No	Description	#	Validation rule	Description	#
1	APRC on loans in EUR to households for consumption	MIR (NB30)	$\geq$	Loans in EUR to households for consumption	MIR (NB13, NB14, NB15)
2	APRC on loans in EUR to households for house purchase	MIR (NB31)	$\geq$	Loans in EUR to households for house purchase	MIR (NB16, NB17, NB18, NB19)

It is acknowledged that in practice there are a few cases where these two rules may not hold. For instance, if the APRC is not recalculated when a contract is renegotiated, the AAR could be higher than the APRC. There are also a few cases where rounding makes the AAR slightly higher than the APRC, since the AAR is calculated as a weighted average of more granular MIR breakdowns. In such cases where the validation rules do not hold, reporting agents are required to explain the inconsistencies.

- For those countries granting a derogation to reporting agents for the reporting of APRC on loans to non-profit institutions serving households (NPISHs), new business volumes excluding NPISHs should be lower or equal to new business volumes including NPISHs:

No	Description	#	Validation rule	Description	#
3	APRC on loans in EUR to households for consumption	Weight (NB30)	$\leq$	Loans in EUR to households for consumption	Weight (NB13, NB14, NB15)
4	APRC on loans in EUR to households for house purchase	Weight (NB31)	$\leq$	Loans in EUR to households for house purchase	Weight (NB16, NB17, NB18, NB19)

- Volumes of renegotiated loans should be lower than or equal to volumes of new business loans:

No	Description	#	Validation rule	Description	#
5	Renegotiated loans in EUR to households for consumption	Weight (NB88)	≤	Loans in EUR to households for consumption	Weight (NB13, NB14, NB15)
6	Renegotiated loans in EUR to households for house purchase	Weight (NB89)	≤	Loans in EUR to households for house purchase	Weight (NB16, NB17, NB18, NB19)
7	Renegotiated loans in EUR to households for other purposes	Weight (NB90)	≤	Loans in EUR to households for other purposes	Weight (NB20, NB21, NB22)
8	Renegotiated loans in EUR to non-financial corporations	Weight (NB91)	≤	Loans in EUR to non-financial corporations	Weight (NB37 to NB54)

- Volumes of new business loans with collateral and/or guarantees should be lower than or equal to volumes of new business loans:

No	Description	#	Validation rule	Description	#
9	Loans in EUR to households for consumption with a floating rate and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB55)	≤	Loans in EUR to households for consumption with a floating rate and up to 1 year initial rate fixation	Weight (NB13)
10	Loans in EUR to households for consumption with over 1 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB56)	≤	Loans in EUR to households for consumption with over 1 and up to 5 years initial rate fixation	Weight (NB14)
11	Loans in EUR to households for consumption with over 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB57)	≤	Loans in EUR to households for consumption with over 5 years initial rate fixation	Weight (NB15)
12	Loans in EUR to households for house purchase with a floating rate and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB58)	≤	Loans in EUR to households for house purchase with a floating rate and up to 1 year initial rate fixation	Weight (NB16)
13	Loans in EUR to households for house purchase with over 1 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB59)	≤	Loans in EUR to households for house purchase with over 1 and up to 5 years initial rate fixation	Weight (NB17)
14	Loans in EUR to households for house purchase with over 5 and up to 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB60)	≤	Loans in EUR to households for house purchase with over 5 and up to 10 years initial rate fixation	Weight (NB18)
15	Loans in EUR to households for house purchase with over 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB61)	≤	Loans in EUR to households for house purchase with over 10 years initial rate fixation	Weight (NB19)
16	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with a floating rate and up to 3 months initial rate fixation, only collateralised/guaranteed loans	Weight (NB62)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with a floating rate and up to 3 months initial rate fixation	Weight (NB37)
17	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 3 months and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB63)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 3 months and up to 1 year initial rate fixation	Weight (NB38)
18	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 1 and up to 3 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB64)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 1 and up to 3 years initial rate fixation	Weight (NB39)
19	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 3 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB65)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 3 and up to 5 years initial rate fixation	Weight (NB40)
20	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 5 and up to 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB66)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 5 and up to 10 years initial rate fixation	Weight (NB41)

21	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB67)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with over 10 years initial rate fixation	Weight (NB42)
22	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 3 months initial rate fixation, only collateralised/guaranteed loans	Weight (NB68)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 3 months initial rate fixation	Weight (NB43)
23	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 months and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB69)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 months and up to 1 year initial rate fixation	Weight (NB44)
24	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 1 and up to 3 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB70)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 1 and up to 3 years initial rate fixation	Weight (NB45)
25	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB71)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 and up to 5 years initial rate fixation	Weight (NB46)
26	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 5 and up to 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB72)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 5 and up to 10 years initial rate fixation	Weight (NB47)
27	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB73)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 10 years initial rate fixation	Weight (NB48)
28	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 3 months initial rate fixation, only collateralised/guaranteed loans	Weight (NB74)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 3 months initial rate fixation	Weight (NB49)
29	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 months and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB75)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 months and up to 1 year initial rate fixation	Weight (NB50)
30	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 1 and up to 3 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB76)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 1 and up to 3 years initial rate fixation	Weight (NB51)
31	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB77)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 and up to 5 years initial rate fixation	Weight (NB52)
32	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 5 and up to 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB78)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 5 and up to 10 years initial rate fixation	Weight (NB53)
33	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB79)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 10 years initial rate fixation	Weight (NB54)
34	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB81)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB80)
35	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB83)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB82)
36	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB85)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB84)

- Volumes of new business loans for other purposes to sole proprietors should be lower than or equal to volumes of new business loans for other purposes:

No	Description	#	Validation rule	Description	#
37	Loans in EUR to households for other purposes, of which: sole proprietors and unincorporated partnerships with a floating rate and up to 1 year initial rate fixation	Weight (NB33)	≤	Loans in EUR to households for other purposes with a floating rate and up to 1 year initial rate fixation	Weight (NB20)
38	Loans in EUR to households for other purposes, of which: sole proprietors and unincorporated partnerships with a floating rate and over 1 and up to 5 years initial rate fixation	Weight (NB34)	≤	Loans in EUR to households for other purposes with a floating rate and over 1 and up to 5 years initial rate fixation	Weight (NB21)
39	Loans in EUR to households for other purposes, of which: sole proprietors and unincorporated partnerships with a floating rate and over 5 years initial rate fixation	Weight (NB35)	≤	Loans in EUR to households for other purposes with a floating rate and over 5 years initial rate fixation	Weight (NB22)

- Volumes of new business loans to NFCs with a period of interest rate fixation below one year and an original maturity over one year should be lower than or equal to volumes of new business loans to NFCs with a period of interest rate fixation below one year:

No	Description	#	Validation rule	Description	#
40	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB80)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with up to 1 year initial rate fixation	Weight (NB37, NB38)
41	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB81)	≤	Loans in EUR to non-financial corporations up to an amount of EUR 0.25 mn with up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB62, NB63)
42	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB82)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with up to 1 year initial rate fixation	Weight (NB43, NB44)
43	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB83)	≤	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB68, NB69)
44	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB84)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with up to 1 year initial rate fixation	Weight (NB49, NB50)
45	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB85)	≤	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB74, NB75)

- Volumes of new business loans to NFCs over an amount of EUR 1 million should be higher than EUR 1 million:

No	Description	#	Validation rule	Description
46	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 3 months initial rate fixation	Weight (NB49)	>	EUR 1 mn
47	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 months and up to 1 year initial rate fixation	Weight (NB50)	>	EUR 1 mn
48	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 1 and up to 3 years initial rate fixation	Weight (NB51)	>	EUR 1 mn
49	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 and up to 5 years initial rate fixation	Weight (NB52)	>	EUR 1 mn
50	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 5 and up to 10 years initial rate fixation	Weight (NB53)	>	EUR 1 mn
51	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 10 years initial rate fixation	Weight (NB54)	>	EUR 1 mn
52	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 3 months initial rate fixation, only collateralised/guaranteed loans	Weight (NB74)	>	EUR 1 mn
53	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 months and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB75)	>	EUR 1 mn
54	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 1 and up to 3 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB76)	>	EUR 1 mn
55	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 3 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB77)	>	EUR 1 mn
56	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 5 and up to 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB78)	>	EUR 1 mn
57	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with over 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB79)	>	EUR 1 mn
58	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB84)	>	EUR 1 mn
59	Loans in EUR to non-financial corporations over an amount of EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB85)	>	EUR 1 mn

- Volumes of new business loans to NFCs over an amount of EUR 0.25 million and up to EUR 1 million should be higher than EUR 0.25 million:

No	Description	#	Validation rule	Description
60	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 3 months initial rate fixation	Weight (NB43)	>	EUR 0.25 mn
61	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 months and up to 1 year initial rate fixation	Weight (NB44)	>	EUR 0.25 mn
62	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 1 and up to 3 years initial rate fixation	Weight (NB45)	>	EUR 0.25 mn
63	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 and up to 5 years initial rate fixation	Weight (NB46)	>	EUR 0.25 mn
64	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 5 and up to 10 years initial rate fixation	Weight (NB47)	>	EUR 0.25 mn
65	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 10 years initial rate fixation	Weight (NB48)	>	EUR 0.25 mn
66	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 3 months initial rate fixation, only collateralised/guaranteed loans	Weight (NB68)	>	EUR 0.25 mn
67	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 months and up to 1 year initial rate fixation, only collateralised/guaranteed loans	Weight (NB69)	>	EUR 0.25 mn
68	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 1 and up to 3 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB70)	>	EUR 0.25 mn
69	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 3 and up to 5 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB71)	>	EUR 0.25 mn
70	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 5 and up to 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB72)	>	EUR 0.25 mn
71	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with over 10 years initial rate fixation, only collateralised/guaranteed loans	Weight (NB73)	>	EUR 0.25 mn
72	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year	Weight (NB82)	>	EUR 0.25 mn
73	Loans in EUR to non-financial corporations over an amount of EUR 0.25 mn and up to EUR 1 mn with a floating rate and up to 1 year initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	Weight (NB83)	>	EUR 0.25 mn

11 Revision policy

11.1 Principles of the revision policy

Reporting agents are required to fulfil the minimum standards for transmission, accuracy, compliance with concepts and revisions as specified in Annex II of Regulation ECB/2013/34. In particular, the Regulation states that statistical information must be correct and must comply with the definitions and classifications contained therein.

Sometimes errors occur when data are reported to the NCB. For instance, data might be misclassified (e.g. instruments are not reported in the correct category or maturity bucket) or some information can be omitted by mistake. Furthermore, there can be errors in the calculation of interest rates, etc. Continuous discussion between the reporting agents and the NCBs is a key element for a swift resolution of errors in reporting and correction of data. It is also very important to correct incorrect data not only for the reference periods following the discovery of the error, but also for the past periods during which the error occurred. In particular, as MIR statistics are heavily used in time series analysis, breaks in the series due to errors in data collection should be avoided as they hamper the analysis and distort the interpretation of the figures.

Reporting agents are strongly encouraged to correct their data for the past reporting periods if an error is discovered. This means correcting and resubmitting the data to the NCB. It is acknowledged that it is sometimes difficult to rebuild the whole history of the data, and for this reason in such cases NCBs may as a minimum advise the reporting agent to correct the data for the periods for which the error occurred or over 13 months of data from the latest reference period or back to the starting date of the data collection for the given indicator, whichever is the shortest period. For instance, if data are collected with reference to February 2016 and a mistake is discovered which occurs in the periods October 2015 and before, as a minimum data should be corrected back to January 2015, which corresponds to 13 months prior to the time of the discovery of the error (not back to September 2014, which would be 13 months back from the last period in which the mistake was observed in the data).

In another example where data are collected with reference to February 2016 and a mistake is discovered which affects the reference periods from December 2015 to January 2016, data should be corrected for the period from December 2015 to January 2016.

Paragraph 4 of Annex II to Regulation ECB/2013/34 on the minimum standards for revisions states that the “revisions policy and procedures set by the ECB and the relevant NCB must be followed...” (by the reporting agents). Each NCB has therefore defined specific revision policies and procedures. It is however important to make sure that, overall, across the Eurosystem but also at the ESCB level, common minimum standards are followed in terms of revision policy to ensure the high quality of the MIR data. To this end, NCBs in the ESCB have together defined certain high-

level criteria to help in assessing whether revisions of past data should be requested from reporting agents. These criteria have been designed with the aim to correct major errors, but they do not prevent NCBs from requesting reporting agents to transmit even smaller revisions, as is currently the practice for some NCBs. Overall, it is considered that errors that fulfil these criteria are such that if not corrected over a longer time period, they could hamper the analysis of the monetary policy transmission mechanism and the regular analysis by economists of financial stability or by supervisors working for European banking supervision. These criteria therefore offer a good balance between the costs faced by reporting agents in reporting revisions of past data and the benefits in terms of improving the quality of MFI interest rate statistics.

The underlying principle behind the criteria is that the error of a single reporting agent should not have a major impact on the national aggregates. If it does, the quality and therefore the reliability of the corresponding national aggregate could be seriously compromised. As a consequence, the criteria are based on the impact of the error of a single reporting agent on national aggregates. Rather than using the granular breakdowns as they are defined in the Regulation, the impact is assessed based on national intermediate aggregates. These are typically indicators that aggregate the data collected from reporting agents, for example for maturities of, for instance, total new loans for house purchase. The reason for this is that the detailed breakdowns as defined in the Regulation may not always have the same economic importance in different countries. For instance, in some countries loans for house purchase with a floating rate or an initial rate fixation period of up to one year prevail, whereas in other countries the rates with an initial rate fixation over ten years prevail. Using a more aggregated level, in other words “all interest rate fixations combined” offers a good benchmark and ensures a level playing field for all countries.

A simple way to measure the reporting error is to calculate the difference between the corrected figure and the previously transmitted figure. The assessment of the need for further revisions in the past is undertaken on the basis of the impact of the error on the intermediate aggregates. The detailed calculations are explained in the section below.

11.2 The revision criteria

To calculate the impact of a single reporting agent on national intermediate aggregates, every reporting agent is treated separately and, for each one, it is assessed whether the revisions that have been transmitted by this reporting agent impact intermediate aggregates (including grossing up) by more than 5% of the figure before correction, all other parameters being equal. This threshold is considered to provide an appropriate balance between the costs associated with the revision of data and the benefits that accrue from maintaining accurate historical data series.

(1) For interest rates, revisions on past periods¹³³ should be transmitted if the following condition is met:

The absolute value of the change between the interest rate on the national intermediate aggregate after the correction (period t) and the interest rate on the national intermediate aggregate before the correction (period t) should be equal to or larger than 5% of the level of the interest rate on the national intermediate aggregate before the correction (period t).

$$|r_2 - r_1| \geq |0.05 \cdot r_1| \quad [11]$$

Where:

- r_1 (expressed as a percentage) is the weighted average rate before correction of the national intermediate aggregate:

$$r_1 = \frac{\sum_{i=1}^N r_i \cdot v_i}{\sum_{i=1}^N v_i}$$

- r_2 (expressed as a percentage) is the weighted average rate after correction of the national intermediate aggregate including the revision of reporting agent "R":

$$r_2 = \frac{\tilde{r}_R \cdot \tilde{v}_R + \sum_{\substack{i=1 \\ i \neq R}}^N r_i \cdot v_i}{\tilde{v}_R + \sum_{\substack{i=1 \\ i \neq R}}^N v_i}$$

also written as $r_2 = \frac{\tilde{r}_R \cdot \tilde{v}_R + r_1 \cdot v_1 - r_R \cdot v_R}{\tilde{v}_R + v_1 - v_R}$ where $v_1 = \sum_{i=1}^N v_i$

$\tilde{r}_R$ is the rate that has been revised by reporting agent R and $\tilde{v}_R$ is the corresponding volume. N is the total number of reporting agents included in the actual reporting population, while i represents a single reporting agent included in the actual reporting population $i = 1, 2, 3 \dots N$. Correspondingly, r_i and v_i are the individual interest rates and volumes reported by the reporting agents.

(2) For the new business volumes, revisions have to be transmitted on past periods if the following condition is met:

The absolute value of the change between the new business volume of the national intermediate aggregate after the correction (period t) and the new business volume of the national intermediate aggregate before the correction (period t) should be equal to or larger than 5% of the level of the new business volume of the national intermediate aggregate before the correction (period t)

$$|v_2 - v_1| \geq |0.05 \cdot v_1| \quad [12]$$

v_1 is the new business volume before correction and v_2 is the new business volume after correction.

¹³³ That is to say, for the periods for which the error occurred or over 13 months of data from the time of the revision or back to the starting date of the data collection for the given indicator, whichever is the shortest period.

Where $v_1 = \sum_{i=1}^N v_i$ and $v_2 = \tilde{v}_R + (v_1 - v_R)$

It is important to emphasise that revisions to new business volumes are likely to lead to revisions to interest rates. Interest rates on outstanding amounts are collected under the MIR statistics framework, whereas the corresponding outstanding amounts (i.e. weights used in the calculation of aggregated interest rates) are collected under the BSI statistics framework, which follows a separate revision policy. NCBs may nonetheless encourage reporting agents on a best efforts basis to revise outstanding amounts when they revise the corresponding interest rates on outstanding amounts.

If the revision occurs because of a mistake in reporting that is common to several reporting agents, in other words in the case of a systematic error, all reporting agents are strongly encouraged to submit revisions even if their individual impact falls below the predefined threshold. If the error is present over an extended period but breaches the threshold only for a few non-consecutive months, the standard practice is that data should be corrected for all months displaying the error as far back as possible, but as a minimum for the periods for which the error occurred or over 13 months of data from the time of the revision or back to the starting date of the data collection for the given indicator, whichever is the shortest period.

The intermediate aggregates for which the criteria will be applied are listed below:

For new business (interest rates and new business volumes):

Description	Series key
Loans to corporations of up to EUR 1 mn	MIR.M.XX.B.A2A.A.R.0.2240.EUR.N
Loans to corporations of over EUR 1 mn	MIR.M.XX.B.A2A.A.R.1.2240.EUR.N
Loans to households for consumption (APRC)	MIR.M.XX.B.A2B.A.C.A.2250.EUR.N
Loans to households for house purchase (APRC):	MIR.M.XX.B.A2C.A.C.A.2250.EUR.N
Deposits from corporations	MIR.M.XX.B.L22.A.R.A.2240.EUR.N
Deposits from households	MIR.M.XX.B.L22.A.R.A.2250.EUR.N

For outstanding amounts (interest rates only):

Description	Series key
Loans to corporations	MIR.M.XX.B.A20.A.R.A.2240.EUR.O
Loans to households for consumption and other purposes	MIR.M.XX.B.A25.A.R.A.2250.EUR.O
Loans to households for house purchase	MIR.M.XX.B.A22.A.R.A.2250.EUR.O
Deposits from corporations including overnight deposits and deposits with agreed maturity	MIR.M.XX.B.L22.A.R.A.2240.EUR.O and MIR.M.XX.B.L21.A.R.A.2240.EUR.N
Deposits from households including overnight deposits, deposits with agreed maturity and deposits redeemable at notice	MIR.M.XX.B.L22.A.R.A.2250.EUR.O, MIR.M.XX.B.L21.A.R.A.2250.EUR.N and MIR.M.XX.B.L23.A.R.A.2250.EUR.N

Furthermore, applying the same criteria to the underlying breakdowns will almost certainly ensure that the criteria are met at the intermediate level. Therefore, applying the criteria to all the underlying breakdowns (i.e. at a more granular level) should also fulfil these criteria at the intermediate level. NCBs, when applying these criteria, may apply them at the intermediate level or for all the underlying breakdowns, or a combination of the two, for instance at the intermediate level and for a few additional underlying breakdowns.

For non-euro area EU countries, the revision criteria are applied on a best efforts basis. It is suggested to apply them to the indicators referring to loans and deposits denominated in national currency and, if feasible, to the indicators for euro-denominated instruments, depending on the local importance of the latter.

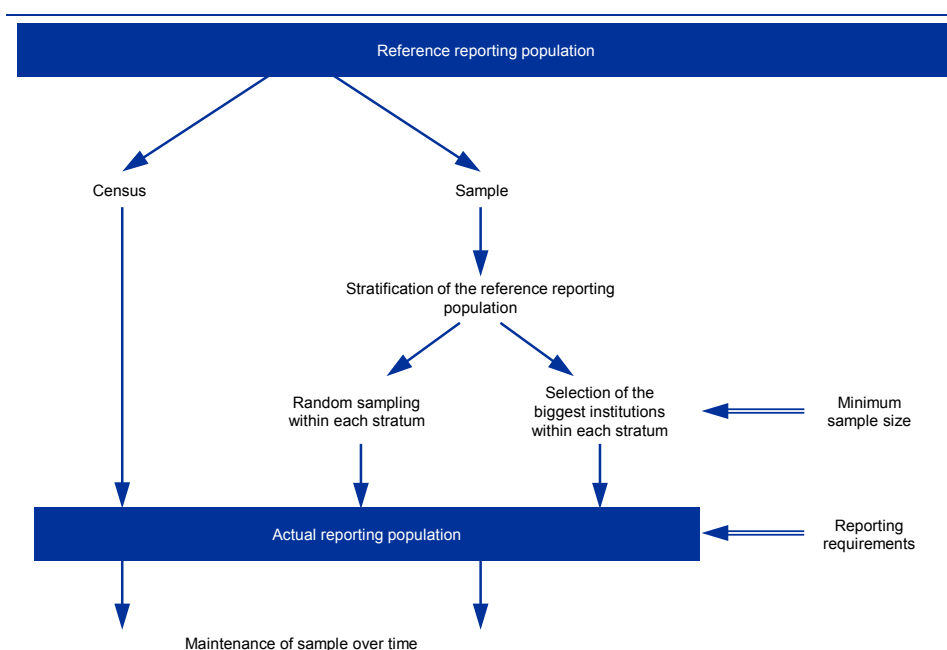
12 Selection of the reporting agents¹³⁴

12.1 Selection of the actual reporting population¹³⁵

MFI interest rate statistics provide for the euro area as a whole and individually for each Member State detailed information about the interest rates that resident MFIs apply to euro-denominated deposits and loans vis-à-vis households and non-financial corporations resident in the euro area. In each Member State, the reporting agents for MFI interest rate statistics are selected by the respective NCB. Each NCB has the choice of declaring all or only a subset of resident MFIs as reporting agents.

The starting point for the selection of the reporting agents is the *reference reporting population*, which provides the *sampling frame*. For each NCB, the reference reporting population comprises all resident MFIs (except central banks and money market funds) which take euro-denominated deposits from and/or grant euro-denominated loans to households and/or non-financial corporations resident in the euro area Member States.¹³⁶ In order to select from the reference reporting population the *actual reporting population*, i.e. the reporting agents for MFI interest rate statistics, NCBs follow the procedure defined in Part 12c of the Guideline, which is outlined as a “decision tree” in Figure 4.

Figure 4
Decision tree



¹³⁴ This chapter refers mainly to Part 14 of Annex II to the Guideline.

¹³⁵ See also Article 2 of the Regulation.

¹³⁶ Defined in Article 1(7) of the Regulation. See also Chapter 3.

An NCB first has the choice between a census and a sample. In the case of a census, the NCB requires each resident MFI in the reference reporting population to report MFI interest rate statistics. In the case of a sample, the NCB stratifies the reference reporting population, which means that the entire reference population is sub-divided into sub-populations including institutions that as a result of their limited banking activity are of minor significance for MFI balance sheet statistics, i.e. so-called “tail institutions”. After the stratification, the NCB ideally selects the reporting agents at random from each stratum. The alternative to drawing at random is to select the largest institutions within each stratum. In order to keep the sample representative over time, the NCB needs to refresh the sample with joiners and adjust it for leavers and other changes in the characteristics of the reporting agents. To ensure the quality of the output, the Regulation defines a minimum size for the national sample.

The sampling approach aims to reduce the reporting burden on the whole banking sector, as only some MFIs have to report, but it might require some small institutions to report MFI interest rate statistics to ensure a representative range of results. Small specialised institutions might offer different interest rates than big universal banks. Following national procedures, the NCB needs to inform the selected reporting agents about their reporting obligations.

12.2 Census versus sampling approach¹³⁷

As stated in Section 12.1, NCBs first have the choice between a census and a sample. In the case of a *census*, the NCB asks all MFIs in that Member State to report MFI interest rate statistics. In other words, the actual reporting population is identical to the reference reporting population. In the case of a *sample*, only a selection of the reference population is asked to report, which implies that the actual reporting population is smaller than the reference reporting population. In general, the advantages of a sample survey compared with a census are as follows:

- **Costs:** A sample is less costly than a census, since data are collected only from a subset of the reference reporting population.¹³⁸ The total costs depend on the size of the sample, which is determined by the desired degree of precision¹³⁹ of the results.

¹³⁷ See also paragraphs 2 to 5 of Part 14 of Annex II to the Guideline.

¹³⁸ Council Regulation (EC) No 2533/98 of 23 November 1998 concerning the collection of statistical information by the European Central Bank (OJ L 318, 27.11.1998, p. 8), as amended by Council Regulation (EC) No 951/2009 of 9 October 2009 (OJ L 269, 14.10.2009, p. 1) specifies in Article 3 that “without prejudice to the fulfilment of its statistical reporting requirements, the ECB may fully or partly exempt specific classes of reporting agents from its statistical reporting requirements”. The ESCB “shall assess the merits and costs of the collection of the new statistical information in question”.

¹³⁹ Variance and standard error, also referred to as sampling error, are measures for the *precision* of the sampling procedure:

$$Var(\hat{\theta}_n) = E[\hat{\theta}_n - E(\hat{\theta}_n)]^2$$

- *Timeliness*: A sample gives more timely results than a census. Sampling limits the number of reporting agents and therefore the number of reports that the NCBs need to collect, check and process.
- *Accuracy*:¹⁴⁰ Sampling procedures may lead to higher quality data. The smaller volume of work (fewer reports), make possible more careful guidance and monitoring of the reporting institutions, and more careful checking of the responses and data processing. In general, sampling procedures tend to reduce *measurement errors*¹⁴¹ in surveys resulting from coding, editing, processing, non-response, incorrect answers, etc.

The disadvantages of sampling procedures compared with a census are partly the costs for setting up and maintaining the sample, but above all the uncertainty resulting from the fact that only a part of the reference reporting population is being observed. The results derived from a sample, i.e. from the actual reporting population, might therefore differ from the true (unknown) values in the reference reporting population. The errors that may occur because sampling procedures are used are referred to as *sampling errors*.¹³⁹ In contrast to measurement errors, which may occur both in a sample and in a census, sampling errors only occur in samples.

As explained in Section 9.4, the ECB performs the final stage in aggregating the instrument categories for each Member State to euro area results. To do so, the ECB requires both interest rates and weights, i.e. the deposit and loan amounts per instrument category and Member State. Whereas for outstanding amounts the weights can be derived from the MFI balance sheet statistics, for new business the weights are based on data collected from the actual reporting population. Hence, in the case of a census and a sample the interest rates on outstanding amounts and on new business, as well as the amount of new business, need to be collected from the reporting agents. This implies that, in the case of a sample, not only the interest rates on outstanding amounts and new business but also the amounts of new business are *sampling variables*, i.e. variables measured with certainty after the selection of the reporting agents. Sampling variables are estimates and therefore subject to sampling errors.

To minimise the risk that the results of a sample survey deviate from the true (unknown) value in the reference reporting population, the aim is to compile a representative sample of MFIs. A sample is considered *representative* of the reference reporting population if it comprises all the characteristics of the institutions that are relevant for MFI interest rate statistics and found in the reference reporting population. In other words, the sample, i.e. the actual reporting population, should reflect the relevant characteristics of all MFIs in the reference reporting population.

There are two main ways of creating a sample:

¹⁴⁰ The mean square error aims to quantify the *accuracy* of the estimator:

$$MSE(\hat{\theta}_n) = E(\hat{\theta}_n - \theta)^2 = Var(\hat{\theta}_n) + E[E(\hat{\theta}_n) - \theta]^2 = \text{Variance} + \text{Bias}$$

¹⁴¹ Measurement errors are sometimes referred to as “non-sampling errors”.

- In the case of non-random or *purposive sampling*, a number of *typical* units are selected from the reference reporting population. A unit is typical if it conforms closely, in the sampler's view, to the characteristics of the reference reporting population. The probability of selecting any particular unit cannot be quantified and therefore the computation of the precision of the sample is impossible.
- In the case of *random sampling*, each unit in the population has a chance of being selected in the sample and this selection probability can be quantified.

The advantages of random sampling over purposive sampling are as follows:

- The reporting agents are selected by chance, i.e. objectively, and not subject to the sampler's view.
- The standard error and hence the precision of the sampling procedure can be quantified.
- The degree of accuracy of the estimates from the sample can be estimated.
- The optimal sample size can be defined, which is further discussed in Section 12.5.
- Selection probabilities and hence expansion factors can be defined, which is further discussed in Section 12.1.

12.3 Stratification of the reference reporting population¹⁴²

To ensure that the sample of MFIs is representative of the potential reporting population, the Regulation requires that if a Member State decides on a sample, then the reference reporting population needs to be stratified before any reporting agents are selected. *Stratification* implies that the reference reporting population N is subdivided into sub-populations or strata $N_1, N_2, N_3, \dots, N_L$. These are not overlapping and together comprise the entire reference population:

$$N_1 + N_2 + N_3 + \dots + N_L = N \quad [13]$$

The advantage of stratification and hence of stratified random sampling is that "extreme" samples, i.e. samples which are not representative of the reference reporting population, can be avoided, resulting in a lower sampling error. For example, in the case of MFI interest rate statistics, a sample containing only institutions specialising in housing loans would be an extreme sample that did not represent all institutions in the reference reporting population. A further advantage of stratified random sampling is that, in addition to the estimated values referring to the entire sample, information can also be gathered about each stratum.

To avoid extreme samples, first the heterogeneous reference reporting population is divided into homogeneous strata. Next, from each stratum a certain number of

¹⁴² See also paragraphs 6 to 9 of Part 14 of Annex II to the Guideline.

reporting agents are drawn, which together constitute the sample. By selecting reporting agents from each of the homogeneous strata, the sample becomes heterogeneous and is therefore representative of the heterogeneous reference reporting population. The heterogeneity refers to the variance of the sampling variables.

A stratum is homogeneous if the measurements for the sampling variables, i.e. the interest rates on outstanding amounts and the interest rates and amounts of new business vary little from one institution to the other. For example, in the case of MFI interest rate statistics, a stratum containing only institutions specialising in housing loans could be a homogeneous stratum, as interest rates might be similar. The result of such homogeneous strata is that the variance of the sampling variables within each stratum, i.e. the *intra-stratum variance*, is lower than the variance between strata, i.e. the *extra-stratum variance*. The decomposition of the total variance into intra-stratum and an extra-stratum variance is also known as *variance analysis* or *Huygens theorem*. The univariate equation¹⁴³ is as follows:

$$Var(y) = Var_{within}(y) + Var_{between}(y)$$

$$Var(y) = \frac{1}{N} \sum_{h=1}^L N_h Var_h(y) + \frac{1}{N} \sum_{h=1}^L N_h (\bar{y}_h - \bar{y})^2$$

[14]

$$Var(y) = \frac{1}{N} \sum_{h=1}^L N_h * \frac{1}{N_h} \sum_{i=1}^{N_h} (y_i - \bar{y}_h)^2 + \frac{1}{N} \sum_{h=1}^L N_h (\bar{y}_h - \bar{y})^2$$

$$Var(y) = \frac{1}{N} \sum_{h=1}^L \sum_{i=1}^{N_h} (y_i - \bar{y}_h)^2 + \frac{1}{N} \sum_{h=1}^L N_h (\bar{y}_h - \bar{y})^2$$

More generally:

$$Var(y) = \sum_{h=1}^L \sum_{i=1}^{N_h} w_i (y_i - \bar{y}_h)^2 + \sum_{h=1}^L w_h (\bar{y}_h - \bar{y})^2$$

¹⁴³ The same kind of relationship exists for multiple variables. In vectorial notation it reads as follows:

$$Inertia = \sum_h \sum_{i \in h} w_i \|y_i - g_h\|^2 + \sum_h w_h \|g_h - g\|^2$$

Meaning of letters and symbols:

w_i Weight of institution i

w_h Weight of the stratum h

y_i Vector of observations for institution i

g_h Vector which is the barycentre (centre of gravity) of the stratum h

g Vector which is the barycentre of the whole set of data

$\|\bullet\|$

A kind of distance: Generally, for numerical data, the family of distances of *Minkowski* is applied, where the distance between two items, e.g. institutions or barycentres is computed with the following formula, where i denotes an institution and j a variable:

$$\|y_i - y_{i'}\| = d(y_i; y_{i'}) = \left\{ \sum_{j=1}^p \alpha_j |y_{ij} - y_{i'j}|^\lambda \right\}^{\frac{1}{\lambda}}$$

The Euclidean distance is given with $\lambda = 2$ and $\alpha_j = 1$

where:

- $\text{Var}(y)$ is the total variance of y in the reference reporting population, with y as the sampling variable
- $\text{Var}_{\text{within}}(y)$ is the variance of y within the strata (intra-stratum variance)
- $\text{Var}_{\text{between}}(y)$ is the variance of y between the strata (extra-stratum variance)
- N is the number of institutions in the reference reporting population
- N_h is the number of institutions in stratum h , with $h = 1, \dots, L$
- $\bar{y}_h$ is the average y in stratum h
- $\bar{y}$ is the average y in the reference reporting population
- w_i is the weight of the individual institution i and
- w_h is the weight of the stratum h

Stratification requires that suitable *stratification criteria* be defined, which allows the sub-division of all MFIs into homogeneous strata. Information on the stratification criteria must be available for each institution in the reference reporting population. The stratification criteria must relate to the purpose of the survey, i.e. to the sampling variables that are to be estimated from the sample. Sampling variables for MFI interest rate statistics are the interest rates on outstanding amounts and on new business as well as the amount of new business.¹⁴⁴ Suitable stratification criteria can be derived, for example, from the MFI balance sheet statistics, national surveys conducted for supervisory purposes, national retail interest rate statistics, or the list of MFIs.

If the institutions within each stratum show little variance in terms of the stratification criteria, and if there is a strong relationship between the stratification criteria and the sampling variables, then the institutions within each stratum are also likely to show little variance in interest rates and amounts of new business. If a small number of MFIs is selected from one stratum, the interest rates and the amounts of new business collected from these institutions can be assumed to be representative of that stratum. Combining the data from the different strata should give results that are representative of the reference reporting population.

Within each Member State *at least one stratification criterion* is required as a minimum standard by the Regulation. The aim is to ensure that the sample of MFIs is representative of this Member State's reference reporting population and the standard error small. Ideally each Member State defines a hierarchy of stratification criteria. These should take into account the national circumstances and hence be specific to each Member State.

¹⁴⁴ See also Section 12.2.

In many countries the banking business with households and non-financial corporations is highly concentrated. The organisational structure of the national banking business may amplify this effect. Some credit institutions might have a legal organisation where only the “head office” is included in the list of MFIs whereas all the regional offices are treated as “branches”. In this case, the head office submits one statistical report covering the whole organisation. In other banking groups, each regional office might be organised as an independent credit institution and as such included in the list of MFIs. In this case, one statistical report covers only the business of the reporting entity. *Concentration in the banking business* and *organisational differences* need to be taken into account when designing the sample. It might be necessary to work with unequal probabilities for the selection of the reporting agents.¹⁴⁵

Bigger countries might consider the region in which the MFI is located as a stratification criterion. Without aiming at the compilation of regional statistics, which goes beyond the user requirements, *regional (ex ante) stratification*¹⁴⁶ reduces the sampling error where regional differences in interest rates or in the type of customer exist. However, depending on the organisational structure, regional differences might be apparent at branch level rather than at the level of credit institutions. Regional differences are captured in interest rates and the new business amounts, if the head office provides data covering all branches. The alternative is to draw a sample at branch level.¹⁴⁷ In the latter case, the same minimum standards as for the sampling of MFIs apply.

For the construction of the strata, the use of *quantitative data analysis techniques*, such as principal component or factor analysis, and of *regrouping techniques*, such as cluster analysis, is recommended. These statistical methods help to allocate the institutions according to their statistical proximity, with similar ones allocated to the same stratum and dissimilar ones to different strata.

Since MFI interest rate statistics are aimed at providing data on the level and development of interest rates both at euro area and at national level, the country of residence of the MFIs is chosen as the first “natural” stratification criterion. *Geographical ex ante stratification* gives NCBs flexibility to choose within the framework set by the Regulation the most suitable procedure for selection the reporting agents. Furthermore, it enables the national samples or census procedures to be combined into a euro area sample ensuring reliable statistics at euro area level and national level. In practice, the data are collected by NCBs from reporting agents at national level and then aggregated to euro area results. The stratification at euro area level can be illustrated in a schematic way¹⁴⁸ as follows:

¹⁴⁵ Further discussed in Section 12.4.

¹⁴⁶ Stratification according to region, which is decided by the sample, before any application of quantitative data analysis and regrouping techniques.

¹⁴⁷ Sampling at branch level is allowed under certain conditions and discussed in Section 12.6. It is carried out without any intermediate drawing, i.e. without sampling (in a first step) credit institutions and (in a second step) branches of the selected institutions; this is further discussed at the end of this chapter.

¹⁴⁸ A brief description of the actual euro area sample for MFI interest rate statistics is given in Section 12.10

Table 11

The potential stratification at euro area level

Potential stratification criteria				Resulting strata
Member States	Region	Size of institution	Type of business	
Member State A				A1
				A2
				A3
				A4
Member State B				B1
				B2
				B3
				B4
				B5
				B6
Member State C				C1
				C2
Member State D				D1
				D2
				D3
				D4
etc.				

The random selection of the reporting agents takes place after all strata are defined. MFIs are drawn from the sampling frame only at this stage (indicated as shaded cells in Table 11). Since there is no intermediate drawing, for example at the level of regions or by the size of the institutions, the approach is referred to as *single-stage sampling*. If there were an intermediate drawing, the sampling would occur in several stages (*multi-stage sampling*) which would require more complex formulae and increase the variance of the estimator.

12.4 Allocation of the sample across strata¹⁴⁹

After defining the national strata and the national sample size n , the sample is drawn by selecting the reporting agents from each stratum. In this way, the actual reporting population is defined. The total sample size n is the sum of the sample sizes n_1 , n_2 , n_3 , ..., n_L for each of the strata:

$$n_1 + n_2 + n_3 + \dots + n_L = n \quad [15]$$

Two things need to be decided before drawing the reporting agents:

- the allocation of the sample size n among the strata; and

¹⁴⁹ See also paragraphs 15 to 20 of Part 14 of Annex II to the Guideline.

- the method for selecting the reporting agents.

Each NCB may choose the most appropriate *allocation of the national sample size* n among the strata. In other words, it is up to the NCBs to define how many reporting agents n_h are drawn from the total MFIs N_h in each stratum, as long as the sampling rate n_h/N_h for each stratum h fulfils the following condition:

$$0 < n_h/N_h \leq 1 \quad [16]$$

The minimum standard is to select at least one reporting agent from each stratum, i.e. the sampling rate needs to be above zero ($0 < n_h/N_h$), which implies that it is not possible to exclude one entire stratum from the actual reporting population. The number of reporting agents n_h may be the same for each stratum (*constant allocation*), proportional to the size of the stratum (proportional allocation), or dependent on the variance of the sampling variables or another closely linked variable in each stratum (optimal allocation¹⁵⁰). The sampling rate may also be one ($n_h/N_h = 1$), which means that all MFIs in a stratum are selected as reporting agents. The allocation of the national sample size across strata has an influence on the variance of the estimator. The best results and hence the lowest total sampling error is in general achieved with optimal allocation.

Regarding the *method for selecting the reporting agents* within each stratum, the Regulation gives NCBs the choice between random sampling and the selection of the largest institutions per stratum,¹⁵¹ where one method may be used for one part of the strata and the other method for the rest:

- The statistically ideal case is the *random selection* of reporting agents in each stratum. In a random sample, each MFI in the stratum has a known probability above zero of being selected as a reporting agent. The random drawing of the institutions in each stratum can then be carried out with *equal probability* for all institutions or with *probability proportional to the size* of the institution. In the latter case, big institutions are more likely to be drawn. However, the small institutions also have a probability of selection above zero and could hence in theory also be selected. Random selection with probability proportional to size is highly recommended with extremely skewed populations.
- The alternative to random sampling is the *selection of the largest institutions* in each stratum. The aim of this procedure is to exclude small MFIs from reporting so that they do not have to bear disproportionately high costs. The selection of the largest institutions per stratum is not random sampling, as small institutions have a probability of selection equal to zero.

The precondition for sampling with probability proportional to size, i.e. for random sampling and the selection of the largest institutions, is a *strong statistical relationship* between the sampling variables and the size of the MFIs in the reference reporting population. Sampling variables are the interest rates and the amount of

¹⁵⁰ Also known as the Neyman optimum.

¹⁵¹ Advantages and drawbacks are discussed in Section 12.2.

new business. The size of the MFI is approximated by the size of the relevant balance sheet items for each institution.

12.5 Minimum national sample size¹⁵²

The sample of reporting agents for MFI interest rate statistics has to be of a size that ensures reliable euro area *and* national statistics simultaneously. Trying to achieve reliable results for the euro area only could lead to a situation where small countries in particular have too few reporting agents to compile a national set of statistics, which would conflict with the aim of providing information about the level and development of interest rates both at euro area *and* at national level. So, for the purpose of MFI interest rate statistics, the minimum *national* sample size is defined. The aggregate of the national samples is then big enough to derive reliable data on the level and development of interest rates in the euro area.

The Regulation gives flexibility to NCBs, while ensuring that the national results are comparable and both the national and euro area results are of high quality. It defines that the *minimum national sample size* in the case of *random sampling selection* shall be such that the maximum random error at

$$D = z_{\alpha/2} * \sqrt{\text{var}(\hat{\theta})} \approx z_{\alpha/2} * \sqrt{\text{var}(\hat{\theta})}$$

national level for interest rates on new business on average over all instrument categories does not exceed 10 basis points¹⁵³ at a confidence level of 90%, where:

- $z_{\alpha/2}$ is a factor computed from the normal distribution or any suitable distribution according to the structure of the data (e.g. t-distribution) assuming a confidence level of $1-\alpha$
- $\text{var}(\hat{\theta})$ is the variance of the estimator of parameter θ and
- $\text{var}(\hat{\theta})$ is the estimated variance of the estimator of parameter θ

But the NCBs may opt to select the *minimum national sample size* through the selection of the largest *institutions within each stratum*. In this case, the minimum national sample size has to comply with a quality measure which is a function of the estimated mean absolute value of the errors. More precisely, the sample quality should be based on a synthetic mean absolute error (MAE). The actual synthetic MAE should not exceed a time-varying threshold assuming a 10 basis point error difference in each stratum and indicator.¹⁵⁴

The synthetic MAES for a given estimator $\hat{\theta}$ in a particular period are defined as:

¹⁵² See also paragraphs 16 to 24 of Part 14 of Annex II to the Guideline.

¹⁵³ The absolute measure of 10 basis points at a confidence level of 90% may be directly translated into a relative measure in terms of the acceptable maximum variation coefficient of the estimator.

¹⁵⁴ More details about this method for selecting the sample can be found in "Quality measures in non-random sampling: MFI interest rate statistics", *Statistics Paper Series*, No 3, European Central Bank, September 2013 [Statistics Paper Series](#)

$$MAE_s(\hat{\theta}) = \sum_c \frac{MAE(\hat{\theta}_c) * B_c}{\sum_k B_k} * \frac{1}{(i_{c1} + (1/(1+i_{c1})))} \quad [17]$$

with:

- $MAE_s(\hat{\theta})$ as the synthetic MAE
- B_c, B_k as the volume in a particular MFI interest rate category
- i_{c1} as the average interest rate estimated in category c
- $MAE(\hat{\theta}_c) = \frac{(\sum_j |error(\hat{\theta}_j)| * (B_{j0} + B_{j1}))}{B}$ as the MAE for a given MIR category on the basis of estimator $\hat{\theta}_j$
- B_{j0} as the volume corresponding to the actual non-reporting in a particular stratum j
- B_{j1} as the volume corresponding to the actual reporting in a particular stratum j (the process of grossing up is further described in Section 12.1)
- B as the total volume for all strata, i.e. the sum of B_{j0} and B_{j1} across all strata
- $error(\hat{\theta}_j) = (i_{j1} * B_{j1} + \hat{\theta}_{j0} * B_{j0}) / (B_{j1} + B_{j0}) - i_{j1}$ as the estimation of the total error within a stratum j
- i_{j1} as the weighted average interest rate corresponding to the actual reporting in a particular stratum j
- $\hat{\theta}_{j0}$ as the value of the estimator $\hat{\theta}$ for the take-none sub-stratum of stratum j (in the event of zero volume coverage in one of the reported strata, the average $\hat{\theta}$ of the other stratum should be used to avoid a MAE equal to zero)
- $\hat{\theta}$ as the average of the first and third quartiles within the stratum, which are defined as the interest rate reported for the MFI interest rate statistics category for which 25% and 75%, respectively, of the reported interest rates are lower than that number. The first and third quartiles are calculated by previously weighting the volume in that category by the institutions in the stratum. Hence, the average between the two MAE estimators – the first (Q1) and the third (Q3) MAE estimators – needs to be used as an estimation for the parameter $\hat{\theta}$.¹⁵⁵

The maximum random error and the synthetic MAE should be calculated separately for new business and for outstanding amounts. For new business, the maximum random error and the synthetic MAE should be calculated on the basis of indicators 2 to 4, 8 to 11, 13 to 22, and 24 to 29 as described in Appendix 2 of Annex I to Regulation ECB/2013/34. For outstanding amounts, the maximum random error and the synthetic MAE should be calculated on the basis of indicators 1 to 14 as described in Appendix 1 of Annex I to Regulation ECB/2013/34.

¹⁵⁵ Note that Tables 1 and 2 in “Quality measures in non-random sampling: MFI interest rate statistics”, *Statistics Paper Series*, No 3, European Central Bank, September 2013 [Statistics Paper Series](#) highlight the results of the synthetic MAE for the first and the third quartile estimators applied in each country.

The minimum national sample size defined in the Regulation refers to the *initial sample* and the *sample after maintenance*. Due to the effect of mergers and leavers, the sample might shrink over time, but it needs to be refreshed at least in the next maintenance period.¹⁵⁶ When selecting new reporting agents, NCBs need to consider that they will require some time to implement the reporting system for MFI interest rate statistics. Hence it is accepted that between maintenance periods the sample might drop below the threshold given by the minimum national sample size.

12.6 Special provisions in the case of group reporting

The reference reporting population for MFI interest rate statistics includes all MFIs except central banks and money market funds that take deposits from and grant loans to households and non-financial corporations identified in the list of MFIs. However, as mentioned in Section 9.2, NCBs may allow MFIs which are resident in a single national territory and individually included in the list of MFIs to report MFI interest rate statistics *together as a group*. Such groups could, for example, be the *Rabobanks* in the Netherlands or the *Caixas de Crédito Agrícola Mútuo* in Portugal. The group becomes a notional reporting agent and has the same reporting requirements as the other (individual) MFIs that are reporting agents.

The counting of the number of institutions in the reference reporting population must be consistent with the counting in the minimum sample size. For example, if the 400 or so *Rabobanks* in the Netherlands are reporting together as a group, they should either be counted as one entity in both the reference reporting population and the sample or they should each be counted individually in both the reference reporting population and the sample.

Groups that are reporting together need to report to the NCB each year, for each instrument category, the number of reporting institutions and the variance of interest rates across these institutions in the group. The number of reporting agents and the variance must refer to the month of October and be transmitted with the October data.¹⁵⁷ The reporting of variances in the group is intended to compensate for the loss of information that results from reporting as a group, and is required by NCBs so they can estimate the total variance of interest rates in the national reference reporting population. The variance of interest rates across individual reporting agents is likely to be higher than the variance across groups. The reason is that each group only reports an average interest rate for the whole group and these rates are supposed to be more homogeneous than the rates offered by the individual MFIs in the group. The average of a group could, for example, even out regional differences if those exist. If group reporting leads to an underestimation of the variance of interest rates in the national reference reporting population, then the required sample size would also be underestimated, as *ceteris paribus* the sample needs to be smaller (larger) if the variance is lower (higher). Likewise, the sampling error would

¹⁵⁶ Further discussed in Section 12.8.

¹⁵⁷ October was chosen as a “normal” month, because it is not a month of quarterly production as are March, June, September and December, and not a “holiday” month.

be underestimated. So it is necessary to report variances within the group to achieve comparable results for all Member States based on the same legal definition of a reporting agent.

12.7 Estimation of total new business volume¹⁵⁸

MFI interest rates for the euro area are compiled as weighted averages of the interest rates applied in the Member States. For interest rates on outstanding amounts, the weighting information is derived from the MFI balance sheet statistics. For interest rates on new business, the new business amount per instrument category and Member State is needed to compute weighted average new business interest rates for the euro area. The amount of new business is collected from the reporting agents together with the interest rates. Assuming that a sample is applied, the total amount of new business per Member State and instrument category needs to be estimated from the results in the sample by applying expansion, *raising or inflation factors*. The estimation of the population total is also referred to as grossing-up.¹⁵⁹

This section describes the grossing-up procedure for the amount of new business, including the computation of *selection probabilities* and their use as expansion factors. Generic terms are used because the precise formulae for a Member State depend on the NCBs' choice of strata, the allocation of the sample across the strata, the method for drawing the reporting agents per stratum and also, in the case of the initial sample, on the auxiliary information available. First, the estimation of the population total from amounts derived by simple random sampling is explained. Then, the more complex procedure for sampling with probability proportional to size is illustrated, which also applies to the selection of the largest institutions within each stratum. As explained in Section 12.4, both the random selection and the selection of the biggest institutions in a stratum are treated as random procedures for the purpose of MFI interest rate statistics. Therefore, the same general method may be used to estimate the total amount of new business in the reference reporting population from the results of the sample.

In the case of *simple random sampling* within a stratum, each MFI has the same chance of being selected. In each draw, the procedure gives an equal chance of selection to every institution in the reference reporting population, i.e. to each institution that has not already been drawn. Hence, each institution has a known probability of selection. Before the first draw, the probability of selecting institution *i* is:

$$\pi_i = \frac{n}{N} \quad [18]$$

¹⁵⁸ Already mentioned in Section 9.3. See also Section 4 of Part 14 of Annex II to the Guideline.

¹⁵⁹ No grossing-up is required for simple averages and ratios, because it is assumed that the estimate from the sample is also the estimate for the population.

with n as the size of the sample and N as the size of the reference reporting population. The inverse of this selection probability is then used as the expansion factor to estimate the total amount of new business in the population from the sample:

$$\frac{1}{\pi_i} = \frac{N}{n} \quad [19]$$

The Horvitz-Thompson estimator for the population total derived from a sample is:

$$\hat{Y} = \sum_{i \in S} \frac{y_i}{\pi_i} \quad [20]$$

with $\hat{Y}$ as the estimated total amount of new business in the reference reporting population, y_i as the amount of new business of institution i and π_i as the probability of selecting institution i . In the case of simple random sampling, the estimator from Equation 26 for the total amount of new business in the population becomes:

$$\hat{Y} = \sum_{i \in S} \frac{y_i}{n/N} = N * \frac{1}{n} \sum_{i \in S} y_i = N * \bar{y}_s \quad [21]$$

The starting point for *sampling with probability proportional to size* is also the calculation of the selection probability π_i for each institution i . The selection probabilities are computed separately for each stratum from the fixed sample size n_h per stratum; the variable U_i indicates the size of the institution i , with p_i being the size of institution i as a share of all institutions:

$$\pi_i = n_h * p_i = n_h * \frac{U_i}{\sum_{i=1}^{N_h} U_i} \quad [22]$$

Variable U signifies auxiliary information, which can differ between Member States. It is up to NCBs to define the most suitable national variable U , which must be strongly correlated with the amount of new business, i.e. variable Y , in that Member State. For example, U_i could be the outstanding amount for each instrument category for institution i from the MFI balance sheet statistics. An *important restriction* for the calculation of the selection probabilities is that the product of the fixed sample size n_h and the size U_i of institution i has to be smaller than the total of all institutions in the same instrument category:

$$n_h * U_i < \sum_{i=1}^{N_h} U_i \quad [23]$$

This restriction guarantees the coherence of the selection probabilities. If the restriction of Equation 29 is not fulfilled for institution i , this institution is selected automatically. The probability of its selection is hence set as 1. If Equation 29 is not fulfilled, the other selection probabilities are recalculated based on the exclusion of i with the new restriction:

$$(n_h - 1) * U_{k \neq 1} < \sum_{k=1}^{N_h-1} U_{k \neq 1} \quad [24]$$

If this restriction is again not fulfilled, institution k is selected automatically and its selection probability is set to 1. The other probabilities are then calculated as follows:

$$(n_h - 2) * U_{j \neq k, i} < \sum_{j=1}^{N_h-2} U_{j \neq k, i} \quad [25]$$

etc.

Table 12 gives an example of the calculation of the selection probabilities in the case of sampling with probabilities proportional to size.

Table 12

(N=15; n=4)

Institution	Size Xi	$Xi/(\text{sum } Xi)$	$Xi/(\text{sum } Xi-A)$	$4 \cdot Xi$	$3 \cdot Xi$	Selection probability	
A	16,271,700	0.3414		65,086,800		1	
B	9,293,500	0.195	0.296		27,880,500	0.8881	=3*0.2960
C	6,627,700	0.1391	0.2111		19,883,100	0.6334	=3*0.2111
D	4,822,600	0.1012	0.1536		14,467,800	0.4609	
E	3,420,100	0.0718	0.1089		10,260,300	0.3268	
F	2,975,100	0.0624	0.0948		8,925,300	0.2843	
G	2,418,600	0.0507	0.077		7,255,800	0.2311	
H	669,732	0.0141	0.0213		2,009,196	0.064	
I	470,700	0.0099	0.015		1,412,100	0.045	
J	260,775	0.0055	0.0083		782,325	0.0249	
K	203,760	0.0043	0.0065		611,280	0.0195	
L	126,591	0.0027	0.004		379,773	0.0121	
M	47,600	0.001	0.0015		142,800	0.0045	
N	34,987	0.0007	0.0011		104,961	0.0033	
O	20,000	0.0004	0.0006		60,000	0.0019	
Sum Xi	47,663,445						
Sum Xi-A	31,391,745						

As in the case of simple random sampling, the Horvitz-Thompson estimator in Equation 18 is used to estimate the total amount of new business Y in the reference reporting population from the result of the sample. Hence, inverses of the selection probabilities calculated by means of Equations 28 to 31, i.e. $\frac{1}{\pi_i}$, are used as expansion factors. Assuming that there is a strong statistical relationship between the size of the institutions U and the amount of new business Y, the Horvitz-Thompson formula provides an unbiased estimate of the population total, i.e. the total amount of new business in the reference reporting population. It is important to note that p_i , i.e. the size of institution i as a share of all institutions, in Equation 28, changes over time. In order to derive an *unbiased* estimate of the total amount of new business from the sample, p_i and hence π_i need to be recalculated *each month*.

If the selection of the largest institution approach is used, the expansion factors for each stratum j are defined as the inverse of the stratum coverage ratio by means of the following formula:

$$EF_j = \frac{\hat{B}_j}{\sum_{i=1}^{N_{j1}} \hat{B}_{ij}} = \frac{\sum_{i=1}^{N_{j1}+N_{j0}} \hat{B}_{ij}}{\sum_{i=1}^{N_{j1}} \hat{B}_{ij}} = \frac{\sum_{i=1}^{N_{j1}} \hat{B}_{ij} + \sum_{i=N_{j1}+1}^{N_{j0}} \hat{B}_{ij}}{\sum_{i=1}^{N_{j1}} \hat{B}_{ij}} \quad [26]$$

with:

- $\hat{B}_j$ as the total volume within stratum j
- $\hat{B}_{ij}$ as the volume within each stratum j for the institution i
- N_{j0} as the number of credit institutions not sampled in the stratum j
- N_{j1} as the number of credit institutions sampled in the stratum j

Expansion factors EFj as defined in the previous paragraph in respect of new business are calculated by replacing new business volumes by the related outstanding amounts. The grossed-up volume of stratum j is then calculated as the expansion factor for stratum j multiplied by the reported volume for stratum j.

MFI interest rate statistics are based on a selection *without replacement*, i.e. each MFI can only be selected once. In *random* sampling with probability proportional to size, care has to be taken that the selection probabilities are proportional to the size of the institutions after each draw. Hence, after the first institution is drawn, the selection probabilities of the remaining institutions need to be adjusted, the same after the second institution is drawn, etc. For stratified random sampling, practical methods have been developed. If the *largest institutions within each stratum* are chosen, a selection with replacement can be assumed. In this case, the selection probabilities only need to be calculated once before the first draw.

Each Member State either carries out a census or has *one* sample for MFI interest rate statistics covering all instrument categories.¹⁶⁰ It is hence possible that a reporting agent has no business in some instrument categories. For example, a sample comprises 50 reporting agents, but for one instrument category, only 30 of them carry out business and have outstanding amounts. The outstanding amount, however, is used as auxiliary variable U indicating the size of the institutions. For estimating the total amount of new business for this instrument category, the selection probabilities and hence expansion factors only take into account the 30 reporting agents that carry out business and have outstanding amounts. Whether the reporting agents also have new business or not in that month is irrelevant in calculating the selection probabilities and expansion factors.

12.8 Maintenance of the sample¹⁶¹

NCBs that choose the sampling approach must ensure that the sample remains representative over time. Maintenance of the sample over time is inherent to *panel surveys* that aim to collect two or more measures from the same sample units over time. The fact that the same units report repeatedly over time ensures the consistency of the answers, also known as the panel effect.¹⁶²

¹⁶⁰ See also Section 12.9.

¹⁶¹ See also paragraphs 25 to 30 of Part 14 of Annex II to the Guideline.

¹⁶² See also Section 12.9.

The selection procedure for a panel does not differ from the selection of any other sample. The same methods are applied, but adapted to the panel situation as necessary. What is difficult to capture in a panel, but of no importance in a one-off sample, is the variability of the structure of the reference reporting population compared with the actual reporting population, i.e. the reporting agents. The sample must therefore be adjusted for joiners of the reference reporting population, for leavers from the reference and actual reporting population, as well as for changes in the characteristics of the reporting agents. The following table describes the procedures that need to be followed:

Table 13
Maintenance of the sample over time

	t1	Leavers	Joiners	t2
Panel of reporting agents	n1	nd	(nb)	n2 nc = n1 - nd
Reference reporting population	N1	Nd	Nb	N2 = Nc + Nb Nc = N1 - Nd
Selection probability	π_{1i}		π'_{2i}	π_{2i}

At time t_1 of the drawing of the initial sample, n_1 institutions of the total N_1 have been selected as reporting agents. At time t_2 , the reference reporting population has changed to N_2 institutions consisting of the common institutions N_c , which are included in the reference reporting population at t_1 and at t_2 , as well as the joiners of the reference reporting population N_b during the period from t_1 to t_2 . The common institutions N_c consist of all institutions N_1 in the reference reporting population at t_1 less the leavers N_d during the period from t_1 to t_2 .

If the initial sample n_1 was drawn as a simple random sample and the sample n_2 not adjusted for joiners and leavers, then the sample n_2 includes only the common institutions n_c , i.e. the n_1 institutions of the initial sample less the leavers n_d . Hence, although the structure of the reference reporting population changes from t_1 to t_2 , this is not reflected in the sample. The situation is as follows:

$$n_2 = n_c = n_1 - n_d$$

$$\frac{n_c}{N_2} \neq \frac{n_1}{N_1} \quad [27]$$

$$\pi_{1i} \neq \pi_{2i}$$

The sample n_2 needs to be adjusted for the *joiners* of the reference reporting population to remain representative of the reference reporting population over time. In order to do so, it is necessary to draw a sample n_b from the population of common institutions (N_c) plus all joiners (N_b). The sample n_2 then includes the common institutions n_c , i.e. the n_1 institutions of the initial sample less the leavers n_d , as well as the joiners n_b in the period from t_1 to t_2 . In this way, the changes in the structure of the reference reporting population resulting from joiners from t_1 to t_2 are also reflected in the sample. The complementary selection of joining institutions n_b among the total number of joiners N_b is referred to as *incremental sampling* over time. The situation is then as follows:

$$n_2 = n_c + n_b = n_1 - n_d + n_b$$

$$\frac{n_c + n_b}{N_c + N_b} = \frac{n_2}{N_2} \cong \frac{n_1}{N_1}$$

[28]

$$\pi_{1i} \cong \pi_{2i}$$

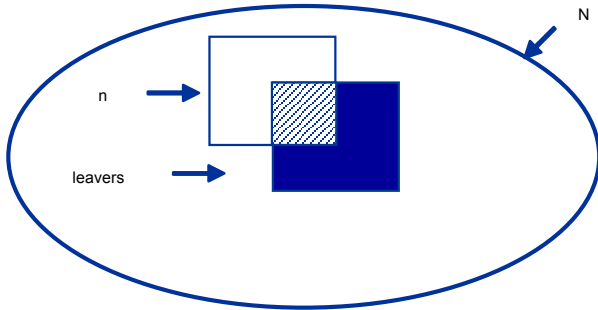
$$N_2 \cong \hat{N}_2 = \sum_{i \in n_c} \frac{1}{\pi_{1i}} + \sum_{i \in n_b} \frac{1}{\pi_{2i}}$$

The sample n_2 also needs to be adjusted for the *leavers* from the reference and the actual reporting population. No adjustment is necessary if there is proportionality between the leavers in the reference reporting population N_d and the leavers in the sample n_d (Case 1). If the institutions are leaving the reference reporting population and these institutions are not in the sample, the sample becomes too large relative to the size of the reference reporting population (Case 2). If relatively more institutions leave the sample than the reference reporting population, the sample becomes too small over time and might cease to be representative (Case 3). These three situations are illustrated in Figure 5, where the circle signifies the reference reporting population N , the uncoloured square the sample n and the dark square the leavers in the period from t_1 to t_2 :

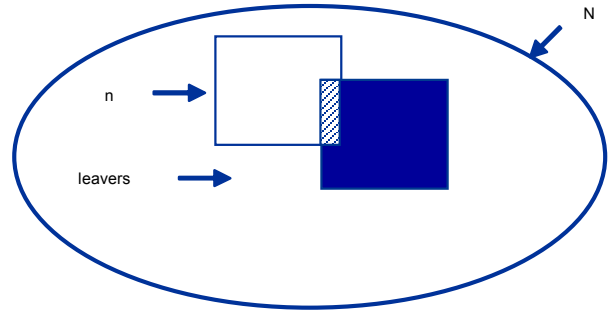
Figure 5

Three cases of the sample compared with reporting population

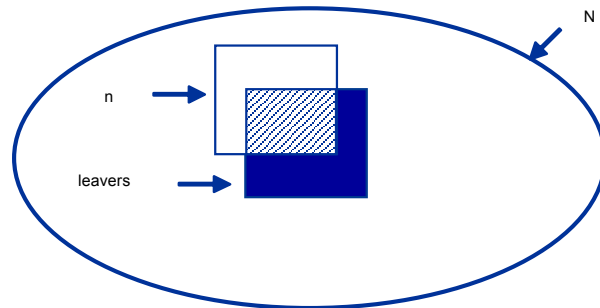
Case 1: Proportionality



Case 2: Leavers under-represented in the sample



Case 3: Leavers over-represented in the sample



Whereas in Case 1 the number of leavers from the reference reporting population can be estimated using the formula $\sum_{i \in n_d} 1/\pi_{1i} \cong N_d$, this is not possible in Cases 2 and 3. In Case 2 the number of leavers in the population is underestimated and in

Case 3 overestimated. If, in Cases 2 and 3, the inverses of the selection probabilities were to be used as expansion factors, this would lead to biased results for the population total. Therefore, in Cases 2 and 3 the weights attached to each reporting agent in the sample must be adjusted, for example by means of *post stratification*, i.e. stratification after the selection of the sample. The weight attached to each reporting agent is the inverse of its selection probability and hence the expansion factor for estimating the population total. With post stratification, the sample is restratified. New selection probabilities and hence weights are allocated.

Even in Case 2, where the sample is relatively too big for the reference reporting population, none of the common institutions *nc* is taken out of the sample. This means that an institution that once implemented the MFI interest rate reporting scheme will only be relieved of the reporting burden if it leaves the list of MFIs or if the NCBs in agreement with the ECB decide to reselect all reporting agents.

Finally, the sample needs to be adjusted for *changes in the characteristics of the reporting agents*. These changes can occur because of mergers, divisions, growth of the institution, etc. Some reporting agents might change the stratum. As in Cases 2 and 3 for leavers, the sample needs to be adjusted, for example by means of post stratification. In this case, the sample is restratified and new selection probabilities and hence weights are allocated.

According to the Regulation, NCBs that choose the sampling approach must *check the representativity* of their sample at least every year. If there are *significant* changes in the reference reporting population, these are reflected in the sample after the annual check. At intervals of at most three years, the sample must be *refreshed* to take account of joiners, leavers and other changes in the characteristics of the reporting agents. NCBs may check and refresh their sample more often. Such adjustments of the sample over time are statistically necessary to ensure the quality of panel surveys; in general, they will not lead to breaks in the time series.

The ECB leaves it to the discretion of the NCB when in the year it reviews the national sample. The ECB also leaves it to the discretion of the NCB how much time it grants to new reporting agents for implementing the reporting requirements, but expects that there are not more than 12 months between the identification of a new reporting agent and the first reporting of data.

12.9 Further sampling issues¹⁶³

To achieve *consistency* between MFI interest rate statistics on (i) outstanding amounts referring to deposits, (ii) outstanding amounts referring to loans, (iii) new business referring to deposits and (iv) new business referring to loans, NCBs should use the same sample of MFIs for collecting these sets of statistics. It is, however, possible to use a sample for a subset of MFI interest rate statistics and a census for the rest, for example a sample for new business and a census for outstanding

¹⁶³ See also paragraphs 31 and 32 of Part 14 of Annex II to the Guideline.

amounts, or a sample for new lending business and a census for new deposit business and outstanding amounts. The Regulation does not allow the use of two or more different samples.

By definition, the interest rates on outstanding amounts cover all deposits placed and not yet withdrawn and all loans withdrawn and not yet repaid by customers in all the periods up to and including the reporting date. Moreover, as the MFI interest rates on new business and on outstanding amounts are weighted averages, not only the interest rates but also the associated quantities are interlinked. The fact that the same MFIs report the statistics both on outstanding amounts and new business and do so repeatedly period after period leads to a panel.¹⁶⁴ This effect ensures the consistency of answers for the two sets of statistics at one particular time (*cross-sectional analysis*) and for each set of statistics over time (*time-series analysis*). If two samples are drawn, one for the reporting of new business and the other for that of outstanding amounts, sampling effects might lead to a different composition of the two actual reporting populations, which might then lead to discrepancies between the two sets of statistics.

NCBs need to cover each *instrument category* that exists in the banking business of resident MFIs with euro area households and non-financial corporations, but not each *product* offered at national level.¹⁶⁵ An instrument category is inapplicable at national level only if MFIs do not offer any such products to resident non-financial corporations and households. NCBs must provide data if some business exists, however limited this business may be. Hence, if an instrument category is only offered by one institution, then this institution needs to be represented in the sample. If an instrument category did not exist in a Member State at the time of the initial drawing of the sample, but afterwards one institution introduces a new product belonging to this instrument category, then this institution needs to be added to the sample at the time of the next representativity check. If a *new product* is created that belongs to an existing instrument category, the institutions in the sample need to cover it with the next reporting, as all reporting agents are required to report for each instrument category *all* interest rates applied to *all* the products that come under this category.

Under certain conditions, sampling is allowed at the level of *branches* rather than at the level of MFIs. Sampling at the level of branches can be undertaken for one or more of the strata in the sample. The first precondition is that the NCB decides on a census for that stratum, i.e. that all MFIs in the stratum are subject to reporting. The second precondition is that the NCB has a full list of branches that covers the entire business of the MFIs in the stratum. The third precondition is that the NCB has appropriate data to assess the variance of interest rates on new business with households and non-financial corporations across branches, and based on this variance the number of branches that should report. The selected branches become *notional* reporting agents and hence have the same reporting obligations as MFIs that are selected as reporting agents. Reporting at branch level does not affect the

¹⁶⁴ See also Section 12.8.

¹⁶⁵ See also Section 7.2.

liability as a reporting agent of the MFI to which a branch belongs, i.e. if a branch reports incorrectly or fails to report, the institution included in the list of MFIs is liable, rather than the branch.

12.10 Description of the euro area sample¹⁶⁶

In the euro area, around half of the Member States apply a *sampling approach* for selecting the reporting agents, whereas the rest (mostly smaller countries) apply a census or almost a census, since only a set of very small MFIs belonging to the reference reporting population is excluded. Hence, only a subset of the reference reporting population has to implement the requirement of the Regulation and provides data for MFI interest rate statistics.

NCBs draw on a variety of *stratification criteria* in order to divide the reference reporting population into homogeneous strata prior to drawing the sample of reporting institutions that forms the actual reporting population. The variety of stratification criteria reflects the diversity of the banking business in the euro area. Some Member States stratify with respect to bank categories; others apply regional components to group the MFIs in the reference reporting population. Furthermore, the type of product and customer, the degree of specialisation, the size of the institution and the number of branches are used to build up homogeneous strata. Some countries use principal component or factor analysis to determine the relevant stratification criteria and apply cluster analysis to establish the strata.

After setting up the most convenient stratification, NCBs select the reporting institutions within each stratum. As stated in Section 10.4, there are three possibilities: (a) to include all institutions in the stratum; (b) to draw the institutions following a random sample method with equal probability for all institutions or with probability proportional to size; or (c) to select the largest institutions per stratum.

Almost all NCBs adopting a sample select as reporting agents the *largest institutions* within each stratum. The procedure is often combined with, or leads to, a census in at least one stratum in such a way that all main MFIs in terms of size are included in the sample. In several cases, the application of a census in some strata has the purpose of capturing all institutions specialised in some type of business. Few NCBs select reporting agents randomly with probability proportional to size.

Some Member States allow *group reporting*. Therefore, some of their MFIs, which are individually included in the list of MFIs, report MFI interest rate statistics together as a group, i.e. as if they were a single MFI. The group becomes a notional reporting agent.

The selection procedure leads to a euro area sample of nearly 30% of all institutions included in the reference reporting population. Despite this limited percentage, the coverage in terms of deposits and loans is broad. With regard to deposits, the euro

¹⁶⁶ A very useful complement to this section is "Quality measures in non-random sampling: MFI interest rate statistics", *Statistics Paper Series*, No 3, European Central Bank, September 2013.

area sample covers about 80% of the stock of euro-denominated deposits received from households resident in the euro area and the same percentage of the ones received from non-financial corporations resident in the euro area. Regarding loans granted, the corresponding percentages are slightly above 85% in both sectors.

13 Derived indicators

13.1 Reason for including this chapter in the Manual

As outlined in Chapter 1, the aim of the Manual is to be a useful tool mainly to assist the compilers of statistics on MFI interest rates and the reporting agents, since it contains explanations complementary to the Regulation and the Guideline as well as detailed examples aiming at clarifying doubtful or complex cases. However, as experience has demonstrated, the Manual is also very useful to other users and the public at large to illustrate and make transparent the work on the compilation of indicators derived from MFI interest rate statistics. Focusing on this use, the Manual should offer some explanations on the derived indicators that statisticians and other users regularly use to make their analysis, in particular on the relevance of these indicators and the way they are calculated.

As the Manual shows, the MFI interest rate statistics contain information that is very wide in scope. The wide range of instrument series available allows users to analyse a very broad set of characteristics of retail interest rates on deposits and loans vis-à-vis households and non-financial corporations. However, at the same time, this richness of information constitutes a potentially serious obstacle when it is necessary to have a general overview of interest rates in different EU countries. In particular, the differences that still exist in the various features of the respective financial systems across euro area countries call for the building of indicators which allow the users to compare interest rates in the various countries making up the euro area. That said, when analysing the changes of MFI interest rates in the euro area as a whole, it is necessary to go a step further to correctly assess the causes (changes in interest rates or changes in country weights) of such changes. To facilitate these sorts of analysis, several derived indicators such as Bennet binary indices for rates and weights, Bennet chain indices, coefficients of variation, and cost-of-borrowing indicators are regularly used by the ECB as well as other users. The following sections explain further the main reasons for the use of these derived indicators and the way they have been calculated. All these indicators are available in the ECB Statistical Data Warehouse (SDW) at the euro area level, and the cost-of-borrowing indicators are also published at the national level.

13.2 Bennet binary indices for rates and weights

As stated in Chapter 9, the final level of aggregation to obtain interest rates for the euro area for each instrument category is carried out by the ECB. The euro area interest rates are weighted averages of national MFI interest rates of euro area countries using the respective business volumes as weights. When this stage is finished, the analysis of the euro area data begins. The first objective is to observe and assess the changes in the MFI interest rates of the different instruments in the euro area as a whole. The euro area interest rates are calculated as a weighted average of the corresponding interest rates in each of the euro area Member States,

each of them with very different weights in terms of the respective business volumes. A crucial point for the statisticians and other users is to know which part of the variations in the euro area interest rates is attributable to a price component (the pure change in the national interest rates) and which part is explained by the weights, i.e. changes in the business volumes. Taking, for example, one instrument category, it may be that the interest rate of this instrument category has not changed in any Member State for two consecutive periods, but the resulting interest rate for the euro area displays a change. This can be the case because of changes in relative business volumes across countries between these two consecutive periods. When trying to disentangle these two components – the change in the rate of interest (price component) and in the country weights (quantity component) – the statisticians of the ECB have to resort to the application of index number theory.

Most of the standard index number theories decompose a value ratio into the product of a price index and a quantity index. The price index is interpreted as an aggregate price ratio and the same applies to the other component of the product (the quantity ratio). However, a change in an interest rate is better understood and usually communicated in absolute values of the change rather than expressing it as a percentage. These indices, calculated in terms of differences, were first presented in the 1920s by T. L. Bennet and J. K. Montgomery who decomposed a value difference into the sum of a price difference and a quantity difference. In 2005, W. E. Diewert further developed this theory¹⁶⁷.

The ways in which a difference in interest rates between two periods can be decomposed are diverse. Such a difference can be broken down into a “pure” interest rate change and a “pure” weight change and, in some cases, a mixed or composite effect of prices and weights. If the total change is only split into two terms (price and weight effect), this implies that the mixed effect is distributed between them, either symmetrically or not.

Among these different decomposition techniques, the Marshall-Edgeworth type, which Diewert calls the “Bennet indicator”, uses the simple average of the previous and present period weights to calculate the interest rate effect. The weight effect is calculated in the same way, resulting in a decomposition with only two terms. In this decomposition, the composite effect is distributed equally between the interest rate effect and the weight effect. The precise formula is the following:

$$\Delta I_{t,t-1} = \sum_k \Delta i(k)_{t,t-1} \left[\frac{w(k)_t + w(k)_{t-1}}{2} \right] + \sum_k \Delta w(k)_{t,t-1} \left[\frac{i(k)_t + i(k)_{t-1}}{2} \right] \quad [29]$$

The ECB uses a Marshall-Edgeworth-type decomposition with an extended weight effect. Compared with the previous decomposition method, the weight term includes the difference between the country interest rate and the aggregated (euro area) interest rate instead of the country interest rate alone, for both subsequent periods. This expansion does not change the weight effect at the aggregated level, but offers other more detailed interpretation possibilities. This index is called the Bennet binary

¹⁶⁷ More details can be found in Huerga, J. and Steklacova, L., “An application of index numbers theory to interest rates”, Working Paper Series, No 939, European Central Bank, September 2008.

index, with the term “binary” meaning that the comparison is between two consecutive periods. The precise calculation method for this index is as follows:

$$\Delta I_{t,t-1} = I_t - I_{t-1} \text{ where } I_t = \text{interest rate for the euro area at time "t"}$$

$$\Delta I_{t,t-1} = \sum_k^K R(k)_{t,t-1} + \sum_k^K W(k)_{t,t-1} \quad [30]$$

where:

the first addend is the interest rate effect of country k;

the second addend is the weight effect of country k;

K represents all of the euro area countries.

$$R(k)_{t,t-1} = \Delta i(k)_{t,t-1} * \left[\frac{w(k)_t + w(k)_{t-1}}{2} \right] \quad [31]$$

where:

$$\Delta i(k)_{t,t-1} = i(k)_t - i(k)_{t-1}$$

$$i(k)_t = \text{interest rate of country k at time t}$$

$$w(k)_t = \frac{\text{volume}_t(k)}{\text{volume}_t(K)}$$

$$\Delta w(k)_{t,t-1} = w(k)_t - w(k)_{t-1} \quad [32]$$

where:

$$\Delta w(k)_{t,t-1} = w(k)_t - w(k)_{t-1}$$

Considering all the decompositions together:

$$\Delta I_{t,t-1} = \sum_k \Delta i(k)_{t,t-1} \left(\frac{w(k)_t + w(k)_{t-1}}{2} \right) + \sum_k \Delta w(k)_{t,t-1} \left(\frac{(i(k)_t - I_t) + (i(k)_{t-1} - I_{t-1})}{2} \right) \quad [33]$$

where:

I is the MFI interest rate referring to the euro area

i(k) is the national MFI interest rate of country k

w(k) is the national weight of country k

Therefore, the first part of the sum is the interest rate component of the euro area month-to-month level change and the second part is the corresponding weight (business volume) component.

13.3 Bennet chain indices

The Bennet binary index only compares two consecutive periods at a time. However, when having multiple periods the question arises as to which period should be compared with which period. Here again, there are multiple alternatives. In pure

conceptual terms, these alternatives range from comparing each period with a direct index for the whole length of the series, to a comparison of each period with the consecutive one and “chaining” the results to form a series, covering intermediate solutions in which the fixed period would change at a certain frequency but not every period, also implying “chaining” at the time of change in the fixed period.

For MFI interest rates, the price component (the pure interest rate effect) direct index would be constructed as the interest rate component of the decomposition of the changes between each month “t” and month “0”. It is noted that between t and 0 a number of t-1 periods have occurred, with their corresponding rates and weights, which are **not** considered in the direct index at time t.

The total change in interest rate $\Delta I_{t,0}$ is decomposed according to the simplest Marshall-Edgeworth decomposition:

$$\Delta I_{t,0} = \sum_k \Delta i(k)_{t,0} \left[\frac{w(k)_t + w(k)_0}{2} \right] + \sum_k \Delta w(k)_{t,0} \left[\frac{i(k)_t + i(k)_0}{2} \right] \quad [34]$$

Therefore, the difference direct index of interest rates on the basis of the interest rate component of this Marshall-Edgeworth-type decomposition is:

$$Index_t^{DDME} = \sum_k \Delta i(k)_{t,0} \left[\frac{w(k)_t + w(k)_0}{2} \right] \quad [35]$$

where DDME indicates the direct difference Marshall-Edgeworth-type (index).

As the index is calculated as the sum of the interest rate effects for all countries, to better understand it we can focus on one summand, corresponding to the particular country k.

National contribution of country k:

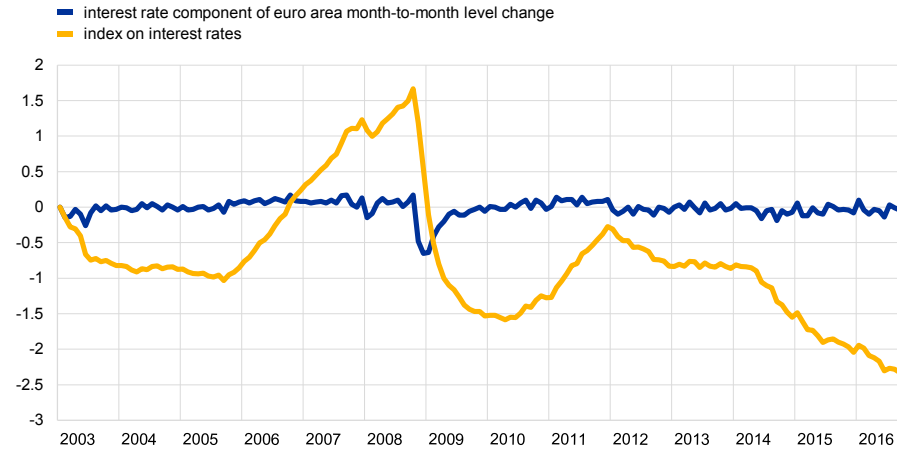
$$Index_t^{DDME}(k) = \Delta i(k)_{t,0} \left[\frac{w(k)_t + w(k)_0}{2} \right] \quad [36]$$

The chain index goes one step further which means that the index is calculated for each period by comparing the price (the interest rate) level of this period with the previous period, and then linking the results by multiplying (chaining) each individual link with the previous one. The procedure is similar to the case of a difference index, with the particularity that each link is chained to the previous one by adding them. Chart 11 shows an example of the difference chain index of interest rates on the basis of the Marshall-Edgeworth-type decomposition:

Chart 11

Euro area, loans to NFCs, up to one million, interest rate fixation up to to one year

(percent per annum)



13.4 Coefficients of cross-country variation

The differences in the financial system, the economic cycle and the degree of relevance of the retail interest rate instrument categories across the euro area Member States are still significant and, as a consequence, the transmission of the monetary policy from the key operational instruments of the Eurosystem to the interest rates applied by the different MFIs to households and non-financial corporations is not uniform. Therefore, for the ECB it is very important to measure the dispersion of the MFI interest rates of the individual euro area countries with respect to the euro area interest rate. This measure is applied through the coefficient of variation. Such a coefficient is calculated for each euro area MFI interest rate instrument category and is computed as the standard deviation divided by the euro area interest rate, thus adjusting for the fact that the standard deviation is influenced by the level of the euro area rate.

The standard deviation is computed as the square root of the weighted variance of the national MFI interest rates with respect to the euro area interest rate. The national business volumes serve as country weights.

The concrete formula is as follows:

$$CV = \frac{\sqrt{\text{weighted_variance}}}{\text{euro_area_MIR}} \quad [37]$$

The weighted variance is obtained as:

$$\sum_k w(k)_t * (i(k)_t - \text{euro_area_MIR}_t)^2 \quad [38]$$

The euro area MFI interest rate is obtained as:

$$\sum_k i(k)_t * w(k)_t \quad [39]$$

where:

$i(k)_t$ is the national MFI interest rate level of euro area country k at month t

$w(k)_t$ is the national weight of euro area country k at month t , i.e. the volume of national business in relation to the euro area total

The weighted variance is the squared deviation between the national and euro area MFI interest rates, calculated according to the national share in the total euro area business volume for a given instrument category.

By measuring, on a monthly basis, the variation of national interest rates around the euro area MFI interest rate adjusted for the level of the euro area rate, the coefficient of variation allows a further comparison of different MFI interest rate indicators.

13.5 Cost-of-borrowing indicators¹⁶⁸

As mentioned in Chapter 2, one of the main uses of MFI interest rate statistics is to analyse the monetary policy transmission mechanism, since these rates are the final link from monetary policy actions to the consumption and investment expenditure of households and non-financial corporations and ultimately prices. Stable, efficient and integrated financial markets are the basis for a smooth transmission of monetary policy within a country or across countries belonging to a monetary union like the euro area.

In the period following the start of Economic and Monetary Union (EMU) at the beginning of 1999 until the beginning of the financial crisis in September 2008 with the default of Lehman Brothers, the rates charged by euro area MFIs to households, mainly for new house purchases, and to non-financial corporations for new loans recorded a low level of dispersion. Even though a certain degree of heterogeneity in MFI interest rates still persisted as a consequence of differences in regulatory and fiscal frameworks across countries, different degrees of competition between banks or differences in the position in the economic cycle across countries, among other factors, the level of integration of the financial markets could be qualified as highly satisfactory¹⁶⁹.

This situation suddenly changed with the eruption of the financial crisis, which fragmented the financial markets of the euro area. This complicates the assessment of the monetary policy transmission mechanism, since in some countries the expansive monetary policy adopted by the ECB during the crisis was mirrored, more or less, by the expected correspondence of growth in bank credit to the non-financial private sectors, while in other countries this variable recorded a much lower response compared with the results foreseen in periods prior to the crisis. These

¹⁶⁸ Further information on the usage of these indicators can be found in the August 2013 ECB Monthly Bulletin article entitled "Assessing the retail bank interest rate pass-through in the euro area at times of financial fragmentation" [ECB Monthly Bulletin article](#).

¹⁶⁹ For more information on the level of integration of the financial markets in Europe, please refer to the Financial integration in Europe annual publications [Financial integration in Europe](#).

different effects across countries can be explained as follows: on the one hand, *the pass-through of monetary policy decisions to the real economy* experienced before the crisis cannot explain the levels of heterogeneity in bank lending rates during the crisis; on the other hand, *the relative importance of loan instruments* changed with the crisis.

Regarding the *pass-through models* (i.e. models where policy interest rates and market interest rates are considered the most important determinants of retail bank lending rates), they have failed to correctly measure the rate of adjustment of bank lending rates to changes in reference rates, because they do not include risk factors and sovereign debt spreads among the explanatory variables. These two kinds of variables have had a strong impact on bank lending rates in some countries. However, users require less volatile instruments than the broad range of MFI interest rate instrument categories for modelling and forecasting purposes.

With respect to the *relative weight of the different loan instruments*, the financial crisis has increased the relative weight of short-term instruments which in a situation of growing uncertainty cover better credit and interest rate risks than long-term instruments. Regarding bank loans to non-financial corporations, there has been a significant increase in overdrafts and other short-term loans in the countries more affected by the crisis compared with the other countries. Therefore, it is necessary to use a measure of the borrowing costs of non-financial corporations and households which is accurate and more comparable across countries.

The reasons mentioned above have led the ECB together with the NCBs to develop a set of aggregate indicators to measure the cost of borrowing of non-financial corporations and households.

The composite cost-of-borrowing indicators are based on MFI interest rate statistics. Thus there are arguments for using monetary policy econometric models with smoothed rate volatility and which allow the comparison of credit conditions across euro area countries with different household and NFC borrowing structures.

There are four categories of cost-of-borrowing indicators, which are available in the ECB SDW at the euro area and the national levels:

1. Cost-of-borrowing indicator for households for house purchase
2. Cost-of-borrowing indicator for non-financial corporations
3. Cost-of-borrowing indicator for short-term loans to households and non-financial corporations
4. Cost-of-borrowing indicator for long-term loans to households and non-financial corporations

For most countries, the data are available as of January 2003, although for certain countries, due to the lack of backdata, the cost-of-borrowing indicators have only been calculated for a shorter period of time. The indicators are derived following the methodology explained in the following sections.

13.5.1 Cost-of-borrowing indicator for households for house purchase

The cost of borrowing for households includes only loans for house purchase. Loans for consumption and other purposes have been excluded as they are very volatile and less relevant for macroeconomic projections. “Short-term” refers to loans with an initial period of interest rate fixation of up to one year regardless of maturity. Accordingly, “long-term” refers to loans with an initial period of interest rate fixation over one year.

This indicator is calculated as a weighted average of MFI interest rates on short-term and long-term loans to households for house purchase, where the new business volumes used are smoothed with a moving average of the previous 24 months’ observations. The precise formula is as follows:

At time t:

$$CB^H = \frac{R_{ST}^H(NB)_t + \frac{1}{24} \sum_{i=t-23}^{t-1} V_{ST}^H(NB)_i + R_{LT}^H(NB)_t + \frac{1}{24} \sum_{i=t-23}^{t-1} V_{LT}^H(NB)_i}{\frac{1}{24} \sum_{i=t-23}^{t-1} V_{ST}^H(NB)_i + \frac{1}{24} \sum_{i=t-23}^{t-1} V_{LT}^H(NB)_i} \quad [40]$$

where:

CB^H is the cost of borrowing for households for house purchase

$R_{ST}^H(NB)$ are interest rates on new business of loans to households for house purchase with a floating rate or an initial rate fixation up to 1 year (MFI interest rate indicator 16)

$V_{ST}^H(NB)$ are volumes of new business of loans to households for house purchase with a floating rate or an initial rate fixation up to 1 year (MFI interest rate indicator 16)

$R_{LT}^H(NB)$ are interest rates on new business of loans to households for house purchase with an initial rate fixation over 1 year (MFI interest rate indicators 17, 18 and 19)

$V_{LT}^H(NB)$ are volumes of new business of loans to households for house purchase with an initial rate fixation over 1 year (MFI interest rate indicators 17, 18 and 19)

13.5.2 Cost-of-borrowing indicator for non-financial corporations

The aggregated cost-of-borrowing indicator for non-financial corporations is calculated in a similar way to the one for households above, i.e. as a weighted average of rates on short-term and long-term loans to non-financial corporations.

As regards short-term loans to non-financial corporations, the MFI interest rate data on new business do not include overdrafts, revolving loans, or convenience and extended credit. For companies in some euro area countries, these instruments (mainly overdrafts) are however a significant source of short-term finance. Thus, since interest rates on overdrafts are, on average, higher than other short-term bank lending rates, their exclusion tends to lower average short-term rates in these

countries. To improve comparability across countries, for cost-of-borrowing purposes, revolving loans and overdrafts and extended credit card credit are incorporated into the calculation of short-term lending rates as described below.

At time t :

$$CB^{NFC} = \frac{\tilde{R}_{ST}^{NFC} * \tilde{V}_{ST}^{NFC} + R_{LT}^{NFC}(NB) * \frac{1}{24} \sum_{i=t}^{t-23} V_{LT}^{NFC}(NB)_i}{\tilde{V}_{ST}^{NFC}(NB)_i + \frac{1}{24} \sum_{i=t}^{t-23} V_{LT}^{NFC}(NB)_i} \quad [41]$$

where:

CB^{NFC} is the cost of borrowing for non-financial corporations

$R_{LT}^{NFC}(NB)$ are interest rates on new business of long-term loans (i.e. loans with interest rate fixation over one year) to non-financial corporations (MFI interest rate indicators 39 to 42; 45 to 48; and 51 to 54)

$V_{LT}^{NFC}(NB)$ are volumes of new business of long-term loans (i.e. loans with interest rate fixation over one year) to non-financial corporations (MFI interest rate indicators 39 to 42; 45 to 48; and 51 to 54)

$\tilde{R}_{ST}^{NFC}$ is the estimated interest rate on new business of short-term loans to non-financial corporations adjusted to take into account overdrafts

$\tilde{V}_{ST}^{NFC}$ is the estimated volume of new business of short-term loans to non-financial corporations slightly inflated to take into account overdrafts, as these are an important source of short-term funding for non-financial corporations. The way to do this is to increase the volume of new business in short-term loans by the share of overdrafts in the total amounts outstanding of short-term loans. When calculating the total amounts outstanding of short-term loans, long-term loans with a residual maturity over one year and interest reset below one year are considered short-term and therefore their amounts are added to the outstanding amounts of short-term loans as taken from BSI statistics.

The estimated volume is calculated as follows:

$$\begin{aligned} \tilde{V}_{ST}^{NFC} &= \frac{1}{24} \sum_{i=t}^{t-23} V_{ST}^{NFC}(NB)_i \times \left(1 + \frac{V_0^{NFC(OA)}}{\underbrace{V_{ST}^{NFC(OA)} + \tilde{V}_{LT,IR<1\text{ year}}^{NFC(OA)}}} \right) \\ &= \beta \end{aligned} \quad [42]$$

where:

$V_{ST}^{NFC}(NB)_i$ are volumes of new business of short-term loans to non-financial corporations (MFI interest rate indicators 37, 38, 43, 44, 49 and 50)

β is the share of overdrafts in the total amounts outstanding of short-term loans

$V_0^{NFC(OA)}$ is the volume of overdrafts, revolving loans, and convenience and extended credit (outstanding amounts)

$V_{ST}^{NFC}(OA)_i$ are volumes of total short-term loans to non-financial corporations (i.e. loans with contractual maturity up to one year – taken from the BSI statistics)

$\tilde{V}_{LT,IR<1\text{ year}}^{NFC}(OA)$ is the estimated volume of long-term loans with original maturity over 1 year, residual maturity over 1 year and with interest rate reset within a year

$$\tilde{V}_{LT,IR<1\text{ year}}^{NFC}(OA) = \frac{1}{12} \sum_{i=0}^{11} \left(\frac{V_{LT,IR<1\text{ year}}^{NFC}(OA)}{V_{LT}^{NFC}(OA)} \right)_{t-i} \times V_{LT}^{NFC}(OA)_t \quad [43]$$

with:

$V_{LT}^{NFC}(OA)$ as volumes of total long-term loans (loans with original maturity over 1 year) to non-financial corporations (taken from the BSI statistics)

$V_{LT,IR<1\text{ year}}^{NFC}(OA)$ as the real volume of long-term loans with original maturity over 1 year, residual maturity over 1 year and interest rate reset within a year, taken from the BSI statistics

The estimated rate $\tilde{R}_{ST}^{NFC}$ is calculated as follows:

$$\tilde{R}_{ST}^{NFC} = \beta R_o^{NFC}(OA) + (1 - \beta) R_{ST}^{NFC}(NB) \quad [44]$$

where:

$R_o^{NFC}(OA)$ are interest rates on overdrafts, revolving loans, convenience and extended credit to non-financial corporations (MFI interest rate indicators 23 and 36)

$R_{ST}^{NFC}(NB)$ are interest rates on new business of short-term loans to non-financial corporations (MFI interest rate indicators 37, 38, 43, 44, 49 and 50)

13.5.3 Cost-of-borrowing indicator for short-term loans to households and non-financial corporations

$$CB_{ST}^{H,NFC} = R_{ST}^H(NB) \times \frac{\frac{1}{24} \sum_{i=t}^{t-23} V_{ST}^H(NB)_i}{\frac{1}{24} \sum_{i=t}^{23} V_{ST}^H(NB)_i + \tilde{V}_{ST}^{NFC}} + \tilde{R}_{ST}^{NFC} \times \left(1 - \frac{\frac{1}{24} \sum_{i=t}^{t-23} V_{ST}^H(NB)_i}{\frac{1}{24} \sum_{i=t}^{23} V_{ST}^H(NB)_i + \tilde{V}_{ST}^{NFC}} \right) \quad [45]$$

where all the components of the formula are already defined in the previous sections 13.5.1 and 13.5.2.

13.5.4 Cost-of-borrowing indicator for long-term loans to households and non-financial corporations

$$CB_{LT}^{H,NFC} = \frac{R_{LT}^H(NB) \times \frac{1}{24} \sum_{i=t}^{t-23} V_{LT}^H(NB)_i + R_{LT}^{NFC}(NB) \times \frac{1}{24} \sum_{i=t}^{t-23} V_{LT}^{NFC}(NB)_i}{\frac{1}{24} \sum_{i=t}^{t-23} V_{LT}^H(NB)_i + \frac{1}{24} \sum_{i=t}^{t-23} V_{LT}^{NFC}(NB)_i} \quad [46]$$

where all the components of the formula are already defined in the previous sections 13.5.1 and 13.5.2.

Appendix

Table 1

Indicators for rates on outstanding amounts¹⁷⁰

	Sector	Type of instrument	Original maturity	Residual maturity	Interest rate reset	Outstanding amount indicator number:	Reporting obligation
Deposits in EUR	From households	With agreed maturity	Up to 2 years			1	AAR
			Over 2 years			2	AAR
	From non-financial corporations	With agreed maturity	Up to 2 years			3	AAR
			Over 2 years			4	AAR
	Repos					5	AAR
Loans in EUR	To households	For house purchases	Up to 1 year			6	AAR
			Over 1 and up to 5 years			7	AAR
			Over 5 years			8	AAR
		For consumption and other purposes	Up to 1 year			9	AAR
			Over 1 and up to 5 years			10	AAR
			Over 5 years			11	AAR
		Total	Over 1 year	Up to 1 year	In the next 12 months	15	AAR
						Over 1 year	16
						17	AAR
		Over 2 year	Up to 2 years	In the next 24 months	18	AAR	
					Over 2 years	19	AAR
						20	AAR
	To non-financial corporations		Up to 1 year			12	AAR
			Over 1 and up to 5 years			13	AAR
			Over 5 years			14	AAR
		Over 1 year	Up to 1 year	In the next 12 months	21	AAR	
					Over 1 year	22	AAR
						23	AAR
		Over 2 years	Up to 2 years	In the next 24 months	24	AAR	
					Over 2 years	25	AAR
						26	AAR

¹⁷⁰ In the following table “up to” means “up to and including” and “households” include NPISHs.

Table 2

Indicators on new business¹⁷¹

	Sector	Type of instrument	Original maturity, period of notice, initial rate fixation	New business indicator number:	Reporting obligation
Deposits in EUR	From households	Overnight		(1)	AAR
		With agreed maturity	Up to 1 year maturity	2	AAR, amount
			Over 1 and up to 2 years maturity	3	AAR, amount
			Over 2 years maturity	4	AAR, amount
		Redeemable at notice	Up to 3 months notice	(5)	AAR
			Over 3 months notice	(6)	AAR
	From non-financial corporations	Overnight		(7)	AAR
		With agreed maturity	Up to 1 year maturity	8	AAR, amount
			Over 1 and up to 2 years maturity	9	AAR, amount
			Over 2 years maturity	10	AAR, amount
Repos			11	AAR, amount	
Loans in EUR	To households	Revolving loans and overdrafts		(12)	AAR
		Extended credit card credit		(32)	AAR
		For consumption	Floating rate and up to 1 year initial rate fixation	13	AAR, amount
			Over 1 and up to 5 years initial rate fixation	14	AAR, amount
			Over 5 years initial rate fixation	15	AAR, amount
		For house purchases	Floating rate and up to 1 year initial rate fixation	16	AAR, amount
			Over 1 and up to 5 years initial rate fixation	17	AAR, amount
			Over 5 and up to 10 years initial rate fixation	18	AAR, amount
			Over 10 years initial rate fixation	19	AAR, amount
		For other purposes	Floating rate and up to 1 year initial rate fixation	20	AAR, amount
			Over 1 and up to 5 years initial rate fixation	21	AAR, amount
			Over 5 years initial rate fixation	22	AAR, amount
		For other purposes, of which: Sole proprietors	Floating rate and up to 1 year initial rate fixation	33	AAR, amount
			Over 1 and up to 5 years initial rate fixation	34	AAR, amount
			Over 5 years initial rate fixation	35	AAR, amount
	To non-financial corporations	Revolving loans and overdrafts		(23)	AAR
		Extended credit card credit		(36)	AAR
		Loans up to an amount of EUR 0.25 mn	Floating rate and up to 3months period of initial rate fixation	37	AAR, amount
			Over 3 months and up to 1 year period of initial rate fixation	38	AAR, amount
			Over 1 and up to 3 years initial rate fixation	39	AAR, amount
Over 3 and up to 5 years initial rate fixation			40	AAR, amount	
Over 5 and up to 10 years initial rate fixation			41	AAR, amount	
Over 10 years initial rate fixation			42	AAR, amount	

¹⁷¹ In this table “up to” means “up to and including” and “households” include NPISHs. Furthermore, “variable rate” is meant as a synonym for “floating rate”, the latter being the expression used in the Regulation. For indicators 5 and 6, households and non-financial corporations are merged and allocated to the household sector, since it owns about 98% of the outstanding amount of deposits redeemable at notice in all participating Member States combined.

	Loans over an amount of EUR 0.25 mn and up to EUR 1 mn	Floating rate and up to 3months period of initial rate fixation	43	AAR, amount
		Over 3 months and up to 1 year period of initial rate fixation	44	AAR, amount
		Over 1 and up to 3 years initial rate fixation	45	AAR, amount
		Over 3 and up to 5 years initial rate fixation	46	AAR, amount
		Over 5 and up to 10 years initial rate fixation	47	AAR, amount
		Over 10 years initial rate fixation	48	AAR, amount
	Loans over an amount of EUR 1 mn	Floating rate and up to 3months period of initial rate fixation	49	AAR, amount
		Over 3 months and up to 1 year period of initial rate fixation	50	AAR, amount
		Over 1 and up to 3 years initial rate fixation	51	AAR, amount
		Over 3 and up to 5 years initial rate fixation	52	AAR, amount
		Over 5 and up to 10 years initial rate fixation	53	AAR, amount
		Over 10 years initial rate fixation	54	AAR, amount

Table 3
Indicators on new business loans with collateral and/or guarantees

	Sector	Type of instrument	Original maturity, period of notice, initial rate fixation	New business indicator number:	Reporting obligation
Loans in EUR	To households	For consumption	Floating rate and up to 1 year initial rate fixation	55	AAR, amount
			Over 1 and up to 5 years initial rate fixation	56	AAR, amount
			Over 5 years initial rate fixation	57	AAR, amount
		For house purchases	Floating rate and up to 1 year initial rate fixation	58	AAR, amount
			Over 1 and up to 5 years initial rate fixation	59	AAR, amount
			Over 5 and up to 10 years initial rate fixation	60	AAR, amount
			Over 10 years initial rate fixation	61	AAR, amount
	To non-financial corporations	Loans up to an amount of EUR 0.25 mn	Floating rate and up to 3months period of initial rate fixation	62	AAR, amount
			Over 3 months and up to 1 year period of initial rate fixation	63	AAR, amount
			Over 1 and up to 3 years initial rate fixation	64	AAR, amount
			Over 3 and up to 5 years initial rate fixation	65	AAR, amount
			Over 5 and up to 10 years initial rate fixation	66	AAR, amount
			Over 10 years initial rate fixation	67	AAR, amount
		Loans over an amount of EUR 0.25 mn and up to EUR 1 mn	Floating rate and up to 3months period of initial rate fixation	68	AAR, amount
			Over 3 months and up to 1 year period of initial rate fixation	69	AAR, amount
			Over 1 and up to 3 years initial rate fixation	70	AAR, amount
			Over 3 and up to 5 years initial rate fixation	71	AAR, amount
			Over 5 and up to 10 years initial rate fixation	72	AAR, amount
			Over 10 years initial rate fixation	73	AAR, amount
		Loans over an amount of EUR 1 mn	Floating rate and up to 3months period of initial rate fixation	74	AAR, amount
			Over 3 months and up to 1 year period of initial rate fixation	75	AAR, amount
			Over 1 and up to 3 years initial rate fixation	76	AAR, amount
			Over 3 and up to 5 years initial rate fixation	77	AAR, amount
			Over 5 and up to 10 years initial rate fixation	78	AAR, amount
			Over 10 years initial rate fixation	79	AAR, amount

Table 4

Indicators on new business loans to non-financial corporations with period of initial rate fixation below 1 year and original maturity over 1 year

	Sector	Type of instrument	All loans/ collateralised/guaranteed loans by original maturity	New business indicator number:	Reporting obligation
Loans in EUR	To non-financial corporations	Loans up to an amount of EUR 0.25 mn	Floating rate and up to 1 year period of initial rate fixation, with original maturity over 1 year	80	AAR, amount
			Floating rate and up to 1 year period of initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	81	AAR, amount
		Loans over an amount of EUR 0.25 mn and up to EUR 1 mn	Floating rate and up to 1 year period of initial rate fixation, with original maturity over 1 year	82	AAR, amount
			Floating rate and up to 1 year period of initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	83	AAR, amount
		Loans over an amount of EUR 1 mn	Floating rate and up to 1 year period of initial rate fixation, with original maturity over 1 year	84	AAR, amount
			Floating rate and up to 1 year period of initial rate fixation, with original maturity over 1 year, only collateralised/guaranteed loans	85	AAR, amount

Table 5

Indicators 30 and 31 referring to the APRC

	Sector	Type of instrument	New business indicator number:	Reporting obligation
Loans in EUR	To households ¹⁷²	For consumption	30	APRC
		For house purchases	31	APRC

Table 6

Indicators on new business renegotiated loans

	Sector	Type of instrument	Original maturity, period of notice, initial rate fixation	New business indicator number:	Reporting obligation
Loans in EUR	To households	For consumption	Total	88	Amount
		For house purchase	Total	89	Amount
		For other purposes	Total	90	Amount
	To non-financial corporations		Total	91	Amount

¹⁷² In general including NPISHs, but NCBs may grant derogations in this respect.

Table 7

New loans to non-financial corporations (indicators required by the Guideline)

	Sector	Type of instrument	Initial period of interest rate fixation	New business indicator number	Reporting obligation
Loans in EUR	To non-financial corporations	Loans up to an amount of EUR 1 million	Floating rate and up to 1 year period of initial rate fixation	24	AAR/NDER, amount
			Over 1 and up to 5 years period of initial rate fixation	25	AAR/NDER, amount
			Over 5 years period of initial rate fixation	26	AAR/NDER, amount
		Loans over an amount of EUR 1 million	Floating rate and up to 1 year period of initial rate fixation	27	AAR/NDER, amount
			Over 1 and up to 5 years period of initial rate fixation	28	AAR/NDER, amount
			Over 5 years period of initial rate fixation	29	AAR/NDER, amount

Table 8

Revolving loans and overdrafts and convenience and extended credit card credit

(indicators required by the Guideline)

	Sector	Type of instrument	New business indicator number	Reporting obligation
Loans in EUR	To households	Revolving loans and overdrafts, convenience and extended credit card credit	86	AAR/NDER, amount
	To non-financial corporations	Revolving loans and overdrafts, convenience and extended credit card credit	87	AAR/NDER, amount

Table 9

Interest rates on renegotiated loans to households and non-financial corporations

(indicators required by the Guideline)

	Sector	Type of instrument	Original maturity, period of notice, initial period of interest rate fixation	New business indicator number	Reporting obligation
Renegotiated loans in EUR	To households	For consumption	total	88	AAR/NDER
		For house purchase	total	89	AAR/NDER
		For other purposes	total	90	AAR/NDER
	To non-financial corporations		total	91	AAR/NDER

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