MONETARY STATISTICS MANUAL
2012

MAGYAR NEMZETI BANK

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1 Introduction

The purpose of this publication is to provide general information on the scope of statistical data published by the Magyar Nemzeti Bank (MNB) and to facilitate the use and correct interpretation of monetary statistics. The introduction briefly describes the main objective and outputs of monetary statistics, outlines its areas of application by the MNB and international bodies and gives some useful references for the benefit of readers interested in the implementation of monetary policy and analyses of financial stability. Chapter 2 presents key concepts used to describe monetary statistics phenomena such as economic sectors and instruments. The chapter also discusses the ways of presenting data, for instance stocks, the breakdown of changes in stock, seasonal adjustment, short-termn indices, aggregated and consolidated sectoral balance sheets; in the context of interest rate statistics the concepts of new business, agreed interest rate, annualised interest rate, annual percentage rate of charge, etc. Chapter 3 explains the content and structure of the monetary statistical data and time series available on the MNB website and provides additional information to facilitate their interpretation. Chapter 4 summarises connection to the securities statistics and financial accounts published by the MNB while Chapter 5 outlines the legal framework for the statistical work of the MNB.

The principal purpose of monetary statistics is to supply data to the central bank for its monetary policy and maintenance of financial stability. Monetary statistics data are used not only by MNB decision makers but also by macroeconomic analysts, investors and several Hungarian and international organisations. The financial press regularly reports on monetary statistics data. The MNB helps the media through the publication of the data on its website (www.mnb.hu) and press releases on statistical issues when new data are disclosed.

Upon Hungary's EU accession, the Magyar Nemzeti Bank joined the European System of Central Banks (ESCB). On accession, Hungary also undertook to join the euro area, which obliges the MNB to adjust its statistical activities to the requirements of the European Central Bank (ECB).

The MNB started the restructure of its statistics in 1999 to respond to domestic user requirements and to meet the obligations arising from our EU membership. One stage of the development process has been completed; as a result, the monetary statistics operations of the MNB now comply with the ECB's requirements and standards.

The principal output of monetary statistics is balance sheet statistics, which presents the financial assets and liabilities of the sector of monetary financial institutions (MFIs), i.e. economic agents active in money creation.

1.1 MONETARY STATISTICS PUBLICATIONS OF THE MNB

1. The statistical time series 'Monetary statistics', which includes the following balance sheets:

- the statistical balance sheet of the Magyar Nemzeti Bank (MNB);
- aggregated balance sheet of other MFIs;
- aggregated balance sheet of credit institutions;
- consolidated balance sheet of MFIs. (In this case consolidation means that transactions between entities within the sector of monetary financial institutions are eliminated. Shares and equity holdings are exceptions because these are not consolidated.)

2. Other balance sheet statistics:

   - balance sheet of insurance companies;
   - balance sheet of investment funds.

3. Interest rate statistics: beside balance sheet statistics, another important output of monetary statistics is the data on 'the price of money', i.e. the interest rates applied by credit institutions vis-à-vis one another and other economic agents.

4. Related statistics: in addition to core statistical information, the MNB also releases other data:

   - money market interest rates and FX market turnover data;
   - interest rates applied by the MNB;
   - credits of non-financial corporations by branches;
   - accrued interest on MFI loans and deposits;
   - amount of consumer loans to households by type of loan;
   - amount of housing loans by sector, original maturity and currency;
   - monthly financing of non-financial corporations and households on the basis of data provided by domestic credit institutions and preliminary data on securities;
   - composition of loans extended to the household sector.

The data are used primarily by the MNB units participating in preparation of monetary policy decisions or responsible for financial stability. Monetary statistics are also an important source for the compilation of financial account statistics (see MNB, 2008).

Hungary has operated an inflation targeting regime since 2002. Under this regime, the inflation forecast of the MNB acts as the intermediate target. Short-term (three-month) money market rates (primarily treasury bill rates) constitute the operative goal of the MNB, which can be influenced through its two-week base rate. The MNB limits the divergence of overnight interbank interest rates from its policy rate (for the analysis of that mechanism see Erhart, 2004). In this regime, the various monetary statistical data (balance sheets of monetary financial institutions, the monetary base, the various monetary aggregates, interest rates vis-à-vis households and non-financial corporations, etc.) are indicators for monetary policy. As information on the final and intermediate objectives is available less frequently (quarterly) than it would be necessary, the forecasting of economic processes and of the expected trend of the data describing the final and intermediate objectives of monetary policy is particularly important. The indicators serve as the basis for such forecasting (see MNB, 2006).

The data collected from interest rate statistics facilitate the examination of the effects of changes in the central bank interest rate on the interest rates faced by economic agents such as households or non-financial corporations. Knowledge of the speed and extent of the process is essential to understanding the effects of monetary policy on the economy. Changes in interest rates affect the cost of capital, influencing investment decisions and the choice between present or future consumption. The use of interest rate statistics facilitates the comparison of the rate of return of monetary aggregates in the broad sense with the rates of return of alternative instruments. This may lead to conclusions about conversion between monetary and non-monetary instruments and facilitate the analysis of interest revenues and expenditures, and incomes, of sectors.

Interest rate statistics are also useful for the analysis of structural changes in the monetary sector and its financial stability. Data on interest rates helps to analyse the interest spreads and profitability of credit institutions and to identify developments jeopardizing the stability of the financial sector (see Horváth et al., 2004 and MNB, 2011).

Table 1
Use of interest rate statistics

	Type of analysis						
	Monetary transmission				Monetary analysis		Financial stability
	Interest rate channel			Credit channel			
	Interest transmission	Substitution effect	Income effect	External financing premium	Money demand	Credit demand	Competitiveness and profitability of the banking sector
Interest rates on outstanding amounts at the end of the month			X		X	X	X
Interest rates on new business	X	X		X	X	X	X

In addition Hungarian users, the MNB also supplies statistical data to various international organisations regularly, in general with monthly frequency:

- the European Central Bank (ECB),
- the Statistical Office of the European Union (EUROSTAT),
- the International Monetary Fund (IMF),
- the Bank of International Settlement (BIS),
- the Organisation for Economic Cooperation and Development (OECD),
- the European Commission (EC),
- the Swiss National Bank (SNB).

2 Basic concepts of statistics

2.1 BALANCE SHEET STATISTICS

In order to assure the international comparability of data, the MNB uses uniform, internationally accepted concepts, classifications and data compilation procedures. As Hungary is an EU Member State and upon accession it undertook to join the euro area, the regulations of the ECB on the consolidated balance sheet of monetary financial institutions and on interest rate statistics (ECB, 2004; ECB, 2008; ECB, 2010) as well as the manual and guideline supplementing such regulations (see ECB 2011; ECB, 2001) enjoy priority. Above the ECB rules, the source of additional standards are the methodology of the International Monetary Fund (IMF, 2000) and the two principal documents for the system of national accounts: SNA 1993 (UN, 1993) and ESA 1995 (EUROSTAT, 2002).[1] All the standards and requirements assume the use of information compiled on the basis of national accounting rules. In Hungary, just like in most other countries, it is sometimes not possible to assure consistency between the principles and definitions in the standards and the national accounting rules (Accounting Act, 2000; Accounting Decree, 2000; MNB Decree, 2000). Consequently, there may be minor differences between monetary statistics and international standards.[2] Notwithstanding this it can be declared that the definitions of monetary statistics are consistent in their content and name with international standards and with the definitions used by the Hungarian Central Statistical Office.

2.1.1 Resident and non-resident units

An institution is considered as an economic unit if it is capable of owning goods (assets), incurring liabilities, engaging in economic activities, performing economic transactions and entering into contractual relationships with other economic units on its own right. For the purposes of economic statistics, the main categories are corporations (undertakings), unincorporated entities without independent legal status, government entities, non-profit orientated (in the followings: non-profit) institutions and economic units consisting of individual, i.e., households.

Resident or domestic of a given country is any natural or legal person or unincorporated entity whose principle economic interest (permanent residence, registered office, permanent establishment, production etc.) is related to the economic territory of that country.

The definition means that a unit is considered as resident if it engages in some economic activity for a length of time (more than a year) in the economic territory of the country. In case of individuals, a resident is someone who stays or intends to stay in the economic territory of the country for at least one year.[3] Economic territory does not include the territories of other states and international organisations embedded in the state concerned (governmental, diplomatic, military etc. representations or government-level trade or cultural representations) even though they are geographically within the administrative boundaries of the country. In summary: units with their permanent residence, permanent establishment, production etc. within the economic territory of Hungary are considered resident – including, for instance, special purpose entities (SPEs) registered in Hungary but transacting business exclusively with non-resident partners.

Economic units not satisfying the above criteria are considered as **non-residents.**

[1] The ESA 2010 and SNA 2008 will enter into force in 2014; their implementation is under way.
[2] See for instance the treatment of repo type transactions (Section 2.1.4).
[3] Except persons pursuing studies or undergoing medical treatment.

2.1.2 Institutional sectors and subsectors

Macroeconomic statistics classify economic agents into sectors and subsectors based on their economic objectives, operation and the nature of their activities. Units are always classified into sectors based on their principal activity – naturally, although they may also engage in additional other activities. The most important economic agents are corporations engaging in producing goods or providing services to obtain a profit. Regarding their outstanding role in financial processes, statistics classify economic units engaging in financial activities into a separate sector within corporations. Thus financial and non-financial corporations fall into separate sectors. In the statistical releases of the MNB, following the description of the sectors and subsectors the code of the category according to the SNA 1993 is also published, e.g. 'Non-financial corporations (S.11)'. In some publications the classification may be different from the system described above. In those cases the content of the group is described with a combination of SNA codes or through an explanation.

Corporations principally engaged in financial intermediation and/or in auxiliary financial activities make up the sector of **Financial corporations (S.12).** The sector comprises monetary financial institutions – the central bank, credit institutions and money market funds, – insurance corporations, health, mutual and pension funds, investment enterprises as well as other institutions providing auxiliary financial services.

The group of **Monetary financial institutions (S.121+S.122) (MFI)** consists of the central bank and other monetary financial institutions. Certain liabilities of monetary financial institutions – principally the cash and scriptural money they issue and the deposits they collect – constitute the monetary aggregates of the national economy. Consequently, they are called money-creating sectors.

In Hungary, the sector of the **Central bank (S.121)** consists of a single institution, the Magyar Nemzeti Bank, the central bank of the Hungarian economy. Publications often use the abbreviation MNB as the name of the sector. Its treatment as a separate sector is justified by its fundamental role in controlling monetary processes.

The sector of **Other monetary financial institutions (S.122)** consists principally of deposit-taking financial institutions. The word 'other' refers to monetary financial institutions other than the Central bank (S.121). Deposit-taking financial institutions include banks, specialised credit institutions and cooperative credit institutions as defined in the Act on Credit Institutions as well as Hungarian branches of non-resident credit institutions. As a typical activity, they take deposits from the public and extend loans. Consequently, they participate in the money creation process. In addition to deposit-taking financial institutions, the sector of Other monetary financial institutions (S.122) also includes money market funds, which issue money market fund shares (MMF shares), i.e., liabilities that are close substitutes, and behave very similarly, to bank deposits. For statistical purposes an investment fund is considered to be a money market fund if its investment units can be considered as substitutes for bank deposits.

Before 2012 an investment fund was considered to be a money market fund for statistical purposes if all of the following conditions were satisfied: the investment fund primarily invests (more than 85% of its assets) in money market instruments, bank deposits, other transferable debt instruments with average residual maturity of up to one year or shares/units of other money market funds, and it pursues a rate of return that approaches that of money market instruments. As another condition, investment units also had to be similar to deposits in terms of liquidity:

- they must capable of immediate redemption or liquidation without incurring any significant costs, and
- they must have a regularly determined value (price).

As the level of risk increased, a new definition became necessary, which the ECB requires Member States to use since 1 January 2012.

Accordingly, an investment fund can be considered a money market fund if all of the following criteria are satisfied simultaneously:

- It may invest exclusively in deposits of credit institutions or in money market instruments that satisfy the criteria laid down in the Directive on undertakings for collective investment in transferable securities (2009/65/EC).

- The weighted average remaining maturity of the assets in the portfolio should not exceed 6 months, and the portfolio's weighted average remaining life should not exceed 12 months.

- The portfolio must consist of high-rated money market instruments. An instrument is high rated if the rating agency that rated the instrument awards it one of the two best short-term credit ratings. If the instrument has not been rated, the rating resulting from the internal rating policy of the fund manager must be taken into account. The portfolio may also contain investment grade securities if they are issued or guaranteed by the central, regional or local authority or central bank of an EU Member State, by the ECB, the EU or the European Investment Bank. Furthermore, this portfolio may also include debt securities issued by the Hungarian State or the Magyar Nemzeti Bank.

- The remaining maturity of each security must not exceed two years, within that, the number of days remaining until the next repricing date of variable interest rate securities may not exceed 397. In the case of variable interest rate bonds, the interest rate must be linked to some money market benchmark rate or index.

- Money market funds must not have, directly or indirectly, exposures to equities or commodity markets. Derivative transactions may be used only in line with the investment strategy of the fund. Investments in securities denominated in currencies other than the currency of denomination of the fund are allowed only with the full hedging of the foreign exchange risk.

- Of collective forms of investment, it may invest in funds corresponding to the definition of money market fund.

The MNB reviews compliance with the criteria in the definition at the end of each year.

The Association of Hungarian Investment Fund and Asset Management Companies (BAMOSZ) also uses a 'money market fund' classification (see e.g. www.bamosz.hu) and the prospectuses of investment funds state whether they qualify as a money market fund in accordance with the definition of BAMOSZ. Even though the statistical criteria are more stringent than the definition adopted by BAMOSZ, in practice the difference is insignificant.

Regarding their money creating role, credit institutions have special importance for monetary policy; therefore, we separately describe rules regulating the classification of the new establishment or close-up of credit institutions. Under the rules governing Hungarian economic undertakings, an economic undertaking is created upon its entry in the company register by the court of registration, as of the date of registration. If permission for foundation is required for an economic undertaking, notification to the court of registration must be effected within thirty days of receipt of the permission. According to the Act on Credit Institutions (CIFE, 1996), the foundation of a credit institution and the starting of its operation requires the authorization the Hungarian Financial Supervisory Authority (HFSA). Authorization is granted in two steps. The first step is the foundation permission, which entitles the holder to engage in activities to set up banking operations only, that is, the authorisation does not cover the provision of financial services on a commercial basis (such as deposit taking). In possession of the foundation permission the credit institution starts to set up its banking operations and it must apply for an operating license to the HFSA within six months. The HFSA examines if the conditions for the issue of the operating license as set out in legislation are satisfied and decides on the granting of the operating license. In possession of the operating license the credit institution may commence its business operations.

From the time of court registration of the company until receiving operating license from the HFSA, in monetary statistics the credit institution is classified to the sector of non-financial corporations. When the license is issued, the credit institution is reclassified to the sector of other monetary financial institutions – it may start collecting deposits and granting loans only in possession of the operating license.

Credit institutions under liquidation are reclassified to the sector of non-financial corporations when their operating license is withdrawn, as after that they are not allowed to receive deposits or granting loans, namely, they no longer fulfil their role as financial intermediary. Deposits held by credit institutions under liquidation become due at the start of the

liquidation process and they are to be considered as overdue obligations, rather than deposits. (From the start of the liquidation process, no interest accrues, transfers must not be made, the deposit holder may not dispose freely of them, etc.) In the balance sheet of a credit institution under liquidation, the loans granted are treated as financial claims.

The sub-sectors *Other financial intermediaries* (S.123), *Financial auxiliaries* (S.124) and *Insurance corporations and pension funds* (S.125) make up the sector of **Other financial corporations (S.123+S.124+S.125).** The word 'other' refers to financial institutions other than monetary financial institutions.

The majority of financial enterprises, investment funds,[4] investment fund management companies, venture capital companies and funds as wells as those investment companies which are entitled to deal on their own account constitute the sector of **Other financial intermediaries** (S.123). These corporations are financial intermediaries collecting funds that are less liquid than deposits and investing these funds on the money and capital markets as the main activity. The term 'other' indicates financial institutions other than insurance corporations and various funds (e.g. health and pension funds).

Insurance corporations, insurance associations, private pension funds, voluntary mutual pension and health funds and mutual provident societies constitute the sector of **Insurance corporations and pension funds** (S.125). Unlike members of the sector of Other financial intermediaries (S.123), these institutions have very long-term liabilities (longer than 10 years).

Those investment companies that are not entitled to trade on own account, Exchanges, deposit insurance, institution protection and investment protection funds make up the sector of **Financial auxiliaries** (S.124). Their main activity is rendering auxiliary services closely related to financial intermediary activities. The auxiliary nature of their activity is indicated by the fact that the supported financial activity do not appear in their balance sheets. As their principal activity, these financial institutions assure the security and effectiveness of financial intermediary services. In theory, KELER Zrt., the Hungarian clearing house should be classified here, but KELER also has authorization to act as a credit institution. Consequently, in statistics it is classified as *Other monetary financial institution.*

Corporations producing goods intended for commercial distribution or rendering non-financial services as their principal activity constitute the sector of **Non-financial corporations (S.11).** In terms of company form, the following entities belong here (except for the ones performing financial services):

- economic undertakings with legal personality, except state-owned corporations and corporations performing budgetary functions, which are part of the *Central Government* (S.1311) (see in the relevant section);
- cooperatives (other than co-operative credit institutions);
- other businesses with legal personality;
- unincorporated business associations (including limited partnerships, general partnerships and single-member companies);
- non-profit institutions supporting, and financed by, corporations; as well as
- newly established credit institutions from the time of registration by the court of registration to the issue of the operating license, and credit institutions in liquidation.

Organisations and economic units funded mostly from mandatory payments (taxes, contributions, etc.) and engaging in non-market manufacturing or service provision activities make up the sector of the **General Government (S.13).** The general government consists of the sectors of the *Central government* (S.1311), *Local governments* (S.1313) and *Social security funds* (S.1314).

Central government and its institutions as well as corporations engaging in the management of state property, certain non-market manufacturing or services or the redistribution of income and owned by the central government constitute the sector of the **Central government** (S.1311). 'Non-market' refers to activities performed free of charge or at rates significantly below the market price.

[4] Except money market funds.

Local governments (S.1313) include county and municipal governments and their institutions as well as local minority self-governments and their institutions. This sector also includes non-profit organisations financed or controlled principally by local governments. The sector of local governments also comprises corporations owned by non-market producers or local governments.

The Pension Insurance Fund, the Health Insurance Fund and the institutions thereof make up the sector of **Social security funds (S.1314).** These institutions operate the mandatory state health and pension insurance systems.

Natural persons or the groups thereof make up the sector of **Households (S.14).** As their personal and commercial activities and consumption cannot be separated, natural persons as well as self-employed persons are also classified in this sector. The category of self-employed persons includes sole proprietors, other self-employed persons and private individuals in possession of a tax registration number. Self-employed persons include, inter alia, primary agricultural producers, small-scale agricultural producers, family farmers, craftsmen and shopkeepers. Private persons holding tax registration numbers and employing domestic servants are not considered self-employed person but they are classified in the sector of households.

Trade unions, employee organisations, political parties, churches, church institutions and most of the various non-governmental organisations, associations and foundations make up the sector of **Non-profit institutions serving households (S.15).** In general, non-profit organisations that receive funding primarily from households or are not controlled by the state or economic organisations belong to this category. These institutions make goods or services available to households or society free of charge or at rates significantly below the market price. Wine communities and farm associations also belong here.

Within non-profit institutions only non-profit institutions serving households constitute a separate sector. Other non-profit institutions belong to the sector of their controlling and funding entity. For instance, non-profit organisations financed and controlled by general government entities are classified under the central government or local governments.

For statistical purposes, any economic unit failing to satisfy the criteria of resident status is classified as **Rest of the World or Non-resident (S.2).**

The European Central Bank is responsible for the implementation of monetary policy in the entire euro area. To support this activity of the ECB, monetary statistics need to present the group of countries in the euro area in the standardised breakdown by economic sectors. As the balance sheet statistics of the euro area are generated by consolidating the statistics of Member States, the MS statistics need to show other euro area countries[5] and other non-residents as separate sectors. Accordingly, in certain cases Hungarian monetary statistics also apply breakdowns similar to the resident sector for the sector on non-residents.

The sector of monetary financial institutions of the EMU is divided into the following subsectors:

- Central bank sector consisting of the European Central Bank and the central banks of the EMU Member States, collectively referred to as the euro system.
- Other MFIs subject to reserve requirements in the euro area.
- Other MFIs not subject to reserve requirements in the euro area.

The European Central Bank and the central banks of all the Member States are the European System of Central Banks (ESCB).

[5] At the time of publication, the euro area comprised Austria, Belgium, Cyprus, Estonia, Finland, France, Greece, the Netherlands, Ireland, Luxembourg, Malta, Germany, Italy, Portugal, Spain, Slovakia and Slovenia.

In the case of EMU Member States, the sector of the general government is broken down to four subsectors:

- central government;
- state government;
- local government;
- social security funds.

The sector of **Other non-residents** comprises all foreign countries other than the EMU Member States as well as international institutions, including EU institutions other than the ECB. The MNB uses the following breakdown for other non-residents:

- banks,
- non-banks,
  - general government,
  - other sectors (including the aforementioned international institutions).

2.1.2.1 Changes in sectors from 2014 on

The following changes are proposed in the definition of sectors from 2014 on, in line with the requirements of the ECB, to satisfy the increased demand for data:

- Captive financial institutions, including holding companies, group financing companies and special purpose entities, will be removed from the sector of non-financial corporations and will be presented among financial corporations.

- The sector of insurance corporations and pension funds will be split and the figures for insurance corporations will be disclosed separately from pension fund data.

2.1.3 Branches of the national economy

Sometimes balance sheet statistical reports present certain data in breakdowns different from economic sectors. For example, in the case of non-financial corporations the sectoral breakdown by branches of the economy, i.e., type of activity is based on the Gazdasági Tevékenységek Egységes Ágazati Osztályozási Rendszere (TEÁOR) (NACE) determined by the HCSO. The TEÁOR codes were modified as of 1 January 2008 in line with the codes used in the EU.

2.1.4 Instruments

Cash, loans, deposits, fixed assets etc., that is, the types of assets and liabilities in the monetary balance sheet in general are called **instruments. Financial instruments** are assets or liabilities that also constitute liabilities or assets of some other economic unit.[6] Other balance sheet items are called **non-financial instruments.**

Financial instruments include the following:

Cash stock consists of the stock of Hungarian and foreign currencies.

- **Domestic currency stock:** banknotes and coins in circulation issued by resident monetary financial institutions.

- **Foreign currency stock:** banknotes and coins in circulation issued by non-resident monetary financial institutions and held by residents.

[6] Monetary gold and SDRs are special exceptions not satisfying the above definition. Nevertheless, they are classified among financial instruments because their behaviour is similar to other financial instruments, for instance they may appear in the balance sheets of central banks in the form of monetary gold or SDR holdings.

Deposits are claims of depositors on some monetary financial institutions certified by non-transferable documents.

Unlike financial accounts, monetary statistics classify loans taken and liabilities from repo transactions among deposits received while deposits of the reporting credit institution in other monetary financial institutions and claims from authentic repurchase agreements are disclosed under loans granted.

In accordance with Hungarian accounting practices:

Repurchase transactions are transactions where the transferor transfers to the other party financial assets on its balance sheet subject to an agreement that the same financial assets will be transferred back to the transferor at a specified price on or before the date set out in the agreement, under the terms described in a) or b).

a) **Authentic repurchase transactions** are sale and repurchase transactions where at least one of the parties is a credit institution and the transferee undertakes to return the financial assets on a date specified or to be specified by the transferor, and the transferor maintains control over the financial assets through contractual provisions. Authentic repurchase transactions are treated as loan transactions, the underlying asset remains on the books of the transferor and the difference between the sale price and the repurchase price is considered as interest.

b) **Non-authentic repurchase transactions** are sale and repurchase transactions where, depending on the agreement between the parties, the transferee is entitled, at its discretion, to return the underlying asset on (or before) a date specified or to be specified by the transferee or at the time of the satisfaction of a specified future condition at the sale price or some other price determined by the parties, and the transferor is obliged to repurchase such assets. Non-authentic repurchase transactions are treated in accordance with the general rules governing the sale of financial assets.

Within deposits, statistics differentiate between overnight deposits, deposits with agreed maturity and funds from repo-type transactions.

- **Overnight deposits:** current account deposit is the positive balance on a current account that can be cashed immediately or that can be used to make payments without any substantive limitations or penalties using cheques, bank drafts or similar instruments. A deposit is considered overnight (sight deposit) if no term is specified in the deposit agreement and the sum deposited is available immediately without any interest penalty, for instance it can be withdrawn as cash. Overnight deposits include deposits with no agreed maturity not linked to current accounts as well as deposits with an agree maturity of one working day.

- **Deposits with agreed maturity** are deposits with an agreed maturity of more than one working day. The deposited sum cannot be converted into cash before maturity without an interest penalty. This category also includes arrangements that allow for earlier redemption upon prior notice. Deposits with an agreed maturity of more than two years may also include pension savings accounts.

- **Repo-type transaction** means any agreement for the conveyance of securities while the seller simultaneously obtains the right and obligation to repurchase the securities at a specified price on a future date or on demand. Repo type transactions have the characteristic that in the economic sense the market risk, the holding gain or loss and the interest income are retained by the seller – even in the event of the 'complete conveyance' of title. Repo-type transactions include the following common types of transactions: delivery repo, margin repo, sale and buy back agreements and securities lending.

  The treatment of repo-type transactions under Hungarian accounting rules:

  - In case of delivery repo transactions, the buyer acquires the underlying security and can dispose of it freely during the term of the transactions. Under the Hungarian accounting rules (as opposed to the international practice), the accounting treatment of delivery repos is governed by the general rules applicable to the sale of financial assets; the assets and liabilities arising from these are disclosed off balance sheet.

- In the case of hold-in-custody repo transactions the conditions described under delivery repo transactions are not satisfied, the seller only needs to block the securities as margin for the term of the transaction for the benefit of the buyer. Hold-in-custody repo transactions are treated as loan transactions, the underlying asset remains on the books of the transferor and the difference between the sale price and the repurchase price is considered as interest.

- In special delivery repo transactions the buyer acquires the underlying security and can dispose of it freely during the term of the transactions. Similarly to margin repo transactions, special delivery repo transactions are treated as a loan transactions, the underlying asset remaining on the books of the transferor.

- The economic content of sale and buy back agreements is the same as at delivery repo transactions, the only difference is the separate agreements on the sale and buyback. The accounting treatment is also identical with the method described under delivery repos.

- In case of securities lending transactions, the lessor transfers securities to the lessee for a specified fee on condition that the lessee must return the same (or similar) securities at a specified date or on demand. The lessee deposits cash or securities as collateral with the lessor. Under Hungarian accounting rules securities lending transactions are recorded according to the rules governing sale with deferred payment. (The securities lent/borrowed give rise to securities receivables or payables recorded as loans, while the collateral received/given gives rise to liabilities disclosed as deposits and assets disclosed as loans, respectively).

Treatment of repo-type transactions in monetary statistical publications:[7]

- In international statistical methodology, the ownership of securities, therefore the value of securities assets, does not change in economic terms in a repo transaction or a securities lending transaction, and the related cash movements must be recorded as credit or deposit claims or liabilities. The balance sheet data of parties participating in repo transactions have been changed in Hungarian statistical publications accordingly.

- Adjustments are made based on the repo transactions open at the end of the month.

- Adjustments are made in respect of the following repo-type transactions:

  – *repo transactions:* delivery repo (excluding special delivery repo), sale and buy back transactions;
  – *securities lending transaction:* collateralised loan provided against cash or miscellaneous collateral, securities lending provided against other collateral and uncollateralised securities lending.

- Transaction data for the current month are calculated after the adjustments.

A **loan** is a monetary claim extended by the lender directly to the borrower, certified by a non-transferable document. In the monetary balance sheets (on the asset side) loans include, in addition to customary lending, the following items:

- deposits of the reporting credit institution in other credit institutions;
- receivables from financial leases and factoring;
- overdue loans not yet written off;
- purchased receivables;
- unpaid interest accured, receivable but overdue;
- debt securities that are non-negotiable and cannot be traded on secondary markets (such as non-negotiable bill of exchange claims);

[7] At the time of releasing the 2011 Q2 data, the MNB published revised balance of payments, securities and financial accounts statistics back to January 2008 due to changes in the treatment of repo-type transactions. Consistent with this, the Monetary Statistics Area also issued a revision of credit institutions' aggregated balance sheet data back to 2008 on 28 October 2011 (at the time of releasing data for September 2011). The repo correction is described in detail in the methodological notes available on the website of the MNB.

- negotiable loans – as certificates for these loans, (small numbers of) negotiable instruments are issued that are generally traded infrequently;
- subordinated debt in the form of loans;
- claims from authentic repurchase agreement and repos reported by credit institutions, and
- claims disclosed within the loan portfolio following repo adjustment.

The balance sheets contain the following **types of loans:**

- **Overdraft** is a negative balance on a current account. Card loans where the bank offers an interest free period are also disclosed here. Overdrafts also contain revolving loans such as the Széchenyi Card Loans.

- **Consumer loans** mean loans to households for the purchase or repair of goods used for everyday needs or for services (such as hire purchase loans, vehicle loans or personal loans). Consumer loans include mortgage loans as well as credit card arrangements where the bank offers no interest-free period and the card merely assures access to credit. In the case of households, overdraft credit belongs to consumer loans.

- **Housing loans** include both subsidised, reduced-rate loans and loans granted at market rates for housing purchases (construction, home purchase, real estate purchase, home renovation, home expansion) as well as loans at market rates for the simultaneous sale and purchase of homes (bridging loans), irrespective of them being mortgage-backed or not. Loans for the construction or purchase of holiday homes or garages are also considered as housing loans. Loans for the purchase of non-residential real estate are disclosed among other loans even if they are backed by a mortgage on a home or other real estate.

- **Other lending** includes all other loans not covered in any of the above categories. It includes, inter alia, ad hoc loans, loans for the purchase of securities, student loans as well as loans related to the Széchenyi Card, with the exception of the Széchenyi Card Loans, as they are used for commercial purposes.

It should be noted that in terms of its content, the category of 'loans' is not identical with the stocks published by international institutions under the heading of 'credit' as 'credit' includes loans as well as the debt securities held by monetary financial institutions. International publications refer to 'loans' instead.

Debt securities (or non-equity securities) are any securities whereby the issuer (the borrower) undertakes to give, at a specified time and in a specified manner, a certain amount of money, financial instrument or other thing of economic value to the holder of the security (generally the creditor). As their key feature, debt securities do not convey ownership title in the issuing institution to their holder.

Debt securities include: government bonds, treasury bills, bonds, warehouse warrants, deposit certificates, mortgage bonds, subordinated debt provided in the form of securities, securitised loans, etc. Unlike negotiable loans, the certificates for securitised loans are large numbers of securities in standardised format (e.g. same nominal value) that can be traded on the secondary market.

Non-negotiable securities are disclosed among loans in monetary statistics. Securities are non-negotiable if their conveyance is limited or difficult, for instance their sale is prohibited by law or they are difficult to sell in the absence of an organised market.

Money market fund shares/units: according to statistical definition, the investment units issued by money market funds belonging to the sector of other monetary financial institutions. (Pursuant to the Investments Act [2011], 'investment unit' shall mean transferable securities issued as part of a series and offered by an investment fund – subject to the form and content requirements laid down in that Act – as representing the claim and other rights of participants in the assets of such an investment fund, as specified in the investment fund's management policy).

Shares and other equity: Shares are securities representing ownership or membership rights that entitle their holder to participate in the net distributable profits of the issuing corporation operating in the form of a company limited by shares

(dividend) and, in the event of the liquidation of the company, in the residual value of the corporation after the satisfaction of all claims by creditors. Other equities (business shares) are financial commitments by corporations operating in company forms other than companies limited by shares that provide ownership rights to their holders similar to those granted by shares. In contrast to the provisions of the Accounting Act, in the monetary balance sheets all investment units issued by non-money-market investment funds are disclosed among shares and other equity.

Monetary gold and special drawing rights (SDR): monetary gold consists exclusively in the gold held by the central bank (or the sate) as part of the international reserves. For statistical purposes, gold held for other purposes is classified among non-financial assets because it is similar to any other goods or materials. Special Drawing Rights are financial instruments issued by the International Monetary Fund (IMF), entitling their holder to exchange them for currency or other reserve assets at other IMF member countries unconditionally.

Capital and reserves includes (on the liability side) share capital, reserves (retained earnings, provisions), profits for the financial year and the balance sheet profit.

In monetary statistics, **non-financial instruments** are disclosed under fixed assets or remaining assets, or under remaining liabilities.

Fixed assets are non-financial instruments; they include invested non-financial assets (e.g. land, buildings), equipment, software, etc.

Remaining assets and **remaining liabilities** also comprise financial and non-financial instruments. This category consists of asset and liability side items that are not included elsewhere for methodological reasons. These include, inter alia, accrued assets and liabilities, on-balance-sheet financial derivatives with positive or negative value,[8] funds in transit etc.

Monetary statistics detail financial instruments by their **original maturity.** Original maturity (maturity at issue) refers to the fixed period of a financial instrument before which it cannot be redeemed (e.g. securities issued) or before which it can be redeemed only with some kind of penalty (e.g. loss of interest accrued but not yet due in case of some types of deposits and borrowings). In addition to the 'short term' (one year or less) or 'long term' classification familiar from accounting, Hungarian monetary statistics also work with the important two-year maturity category as instruments with a maturity of more than two years are considered as long term investment for the purposes of monetary statistics. Thus the liabilities of credit institutions with maturity of more than two years are not subject to the reserving obligation.

2.1.5 Aggregated and consolidated balance sheets

Monetary statistics differentiate between aggregated and consolidated balance sheets. The aggregated balance sheet of a group (sector or subsector) is generated by summing up the assets and liabilities vis-à-vis counterparties within the group (internal) and outside the group (external). In the case of the aggregated balance sheet of other monetary financial institutions, interbank transactions are present both on the asset and liability sides.

For obtaining a consolidated balance sheet, the positions of the group vis-à-vis external parties are summed up as described above while the transactions between group members are eliminated. In the case of the consolidated balance sheet of monetary financial institutions this means that the transactions between any two members of the sector of monetary financial institutions are removed from the balance sheet both on the asset and liability side. This applies to positions between the MNB and any credit institution as well as between any two members of the subsector of other monetary financial institutions. It is important to remember, however, that this only applies to the figures of the same transaction in the balance sheets of the two counterparties (on opposite sides). According to one of the important principles of financial statistics, balance sheets are compiled based on gross figures. If, for instance, a depositor of a credit institution, who is not subject to consolidation, also takes out a loan from the same credit institution, both the deposit and the loan are recognised in their entirety.

[8] Derivative instrument: a financial instrument the value of which is determined by the value of another financial instrument or commodity or some other indicator.

Shares and other equity represent an exception to the above consolidation rule. In compliance with the provisions of the IMF manual on monetary statistics, since January 2010 these instruments are not consolidated out, that is, holdings of equity securities held and issued by monetary financial institutions are presented on the asset side in the consolidated balance sheet as well. (Before January 2010 the shares and other equity of counterparties subject to consolidation were eliminated from the balance sheet.)

2.1.6 Monetary aggregates and the monetary base

The four main functions of money (e.g. IMF, 2000):

- medium of exchange – the means for acquiring goods, services, and financial and non-financial assets without resorting to barter;
- store of value – a means of holding wealth;
- unit of value – serves to denominate the prices of goods, services, financial and non-financial assets;
- means of deferred payments – a means of relating current and future values.

The volume of money in circulation is measured by the so-called monetary aggregates, which comprise certain types of financial assets. For the definition of the various monetary aggregates the financial assets are classified depending on the transaction cost of their use for payment and their level of general acceptance as well as the extent to which they retain their value. In short: the extent to which they perform the aforesaid functions of money. The narrowest set consists of the financial assets that can be used for payment at the shortest notice, lowest transaction cost and without restriction. This category includes cash, i.e., banknotes and coins as well as accounts directly usable for payment. Broader monetary aggregates include, in addition to the above, the less liquid liabilities of monetary financial institutions, that is, financial assets that cannot be used directly for payment (deposits with agreed maturity and certain securities), depending on their typical transaction costs, maturity and risk. Because of reallocations between different liabilities of credit institutions, narrow money aggregates may fluctuate relatively widely in the short term, therefore they lend themselves more to the examination of longer term relationships.

Another important element of the definition of monetary aggregates is the determination of the sectors the assets and liabilities of which are to be included in the aggregates, that is, the relationship of the various sectors to money. In this respect, sectors are classified into three large categories.

The members of the **money-creating sectors** are economic agents whose certain liabilities constitute the money stock of the national economy. They comprise the central bank as well as credit institutions, including the permanent branches of non-resident credit institutions in Hungary, which take deposits from the public and extend loans, thereby creating scriptural money as well as money market funds, the investment units of which are close substitutes for deposits. In summary: the institutions in the sector of monetary financial institutions (MFI) constitute the money-creating sectors and certain liability side items in their consolidated balance sheets comprise the monetary aggregates.

The deposits of the **money-holding sectors** at monetary financial institutions and certain other claims on such institutions form the various monetary aggregates. This category includes all sectors – except for the money-neutral sectors, that is, the central government, non-residents, as well as the sector of monetary financial institutions – i.e., non-financial corporations, local governments, households and non-profit institutions serving households.

Money-neutral sectors are the central government and non residents, which (in respect of the domestic currency) do not participate in money creation.

The relationship with money and the hierarchy of sectors in this regard are compared in Table 2, presenting the differences between the monetary balance sheets of Hungary and the euro area.

The **monetary base** consists of the currency issued by the central bank, the balance of certain accounts, without agreed maturity, of credit institutions held with the central bank and their O/N deposits. The monetary base is not part of the monetary aggregates as it includes the assets of other monetary financial institutions as well as the assets of the money-

Table 2
Comparison of the breakdown of sectors to subsectors in Hungary and in the EMU

<table>
<tr><th colspan="4">Hungary</th><th colspan="4">EMU</th></tr>
<tr><td rowspan="2">Money-creating sectors</td><td>MNB (S.121)</td><td rowspan="2">MFIs (S.122)</td><td rowspan="5">Financial corpo-rations (S.12)</td><td>Central bank (S.121)</td><td rowspan="2">MFIs (S.122)</td><td rowspan="5">Financial corporations (S.12)</td></tr>
<tr><td>Other MFIs (S.122)</td><td>Other MFIs (S.122)</td></tr>
<tr><td rowspan="6">Money-holding sectors</td><td>Other financial intermediaries (S.123)</td><td rowspan="3">Other financial corporations (S.123+S.124+ S.125)</td><td>Other financial intermediaries (S.123)</td><td rowspan="3">Other financial corporations (S.123+S.124+S.125)</td></tr>
<tr><td>Financial auxiliaries (S.124)</td><td>Financial auxiliaries (S.124)</td></tr>
<tr><td>Insurance corporations and pension funds (S.125)</td><td>Insurance corporations and pension funds (S125)</td></tr>
<tr><td colspan="3">Non-financial corporations (S.11)</td><td colspan="3">Non-financial corporations (S.11)</td></tr>
<tr><td colspan="3">Households (S.14)</td><td colspan="3">Households (S.14)</td></tr>
<tr><td colspan="3">Non-profit institutions serving households (S.15)</td><td colspan="3">Non-profit institutions serving households (S.15)</td></tr>
<tr><td>Money-neutral sector</td><td>Central government (S.1311)</td><td rowspan="4">General government (S.13)</td><td colspan="2">Central government (S.1311)</td><td rowspan="4">General government (S13)</td></tr>
<tr><td rowspan="3">Money-holding sectors</td><td>–</td><td colspan="2">State government (S.1312)</td></tr>
<tr><td>Local government (S.1313)</td><td colspan="2">Local government (S.1313)</td></tr>
<tr><td>Social security funds (S.1314)</td><td colspan="2">Social security funds (S.1314)</td></tr>
<tr><td rowspan="3">Money-neutral sector</td><td>EMU Member States</td><td rowspan="3">RoW (S.2)</td><td colspan="2">–</td><td>–</td></tr>
<tr><td rowspan="2">Other non-residents</td><td>Non-EMU Member States (S.211)</td><td rowspan="2">EU outside the EMU (S.21)</td><td rowspan="3">RoW (S.2)</td></tr>
<tr><td>EU institutions (S.212)</td></tr>
<tr><td colspan="3"></td><td colspan="2">Non-EU countries and international organisations (S.22)</td></tr>
</table>

holding sectors. The importance of the monetary base lies in the fact that in some theories of money, as the basis of the so-called money multiplication process, changes of its stock have a major impact on monetary aggregates; this is why the monetary base is also called 'high-powered money'.

2.1.7 Valuation principles

To assure the consistent valuation of assets and liabilities, financial statistics as a rule use the market value for the valuation of stocks and flows. This is applicable if accounting rules permit such treatment and if the market value is available (e.g. in the presence of a secondary market) or if it can be estimated with sufficient accuracy. In case of loans and deposits, the nominal value is used instead of the market value.

The content, valuation etc. of data is governed, with some exceptions, by the Accounting Act (Accounting Act, 2000), the Government Decree on the special rules applicable to the reporting and bookkeeping obligations of credit institutions and financial enterprises (Accounting Decree, 2000) and the Government Decree on special reporting and accounting requirements applicable to the Magyar Nemzeti Bank (MNB Decree, 2000).

Valuation rules applicable to various instruments

The month-end **stock of foreign exchange and currency** and the **outstanding claims on and liabilities to foreign currencies** are reported in the statistics converted into HUF at the MNB's official mid exchange rates effective at the last day of the month. Claims on and liabilities in foreign currencies not listed by the MNB and holdings of such currencies and foreign exchange are reported in HUF converted at the mid exchange rate published in a national daily newspaper for the

exchange rates of currencies of the world effective on the last day of the month or, in the absence of such data, the average mid rate employed by credit institutions in the last month.

Deposits: reported at book value, excluding accrued interest payable (accrued but not capitalised).

Loans: reported at gross book value, i.e., without the deduction of loan loss provisioning, and containing only the interest accured receivables due but unpaid.

Debt securities: on the asset side, securities are included at their net value minus write-down or valuation difference (excluding accrued interest). Net value means net market value in case of monetary financial institutions using fair valuation based accounting, and net book value in all other cases. On the liability side, interest bearing securities are disclosed in the balance sheet at nominal value and discount type securities at discounted value.

Accrued but not paid interest is included among other items for loans, deposits and debt securities alike.[9]

Shares and participations: Reported with the net value, reduced by write-down since May 2001, and at historical value before April 2001.

2.1.8 Changes in stock and transactions

In order to assure the monitoring of trends, the presentation of data in time series with homogeneous content is a fundamental requirement in statistics.

The stock tables of monetary balance sheets are so-called stock time series as they reflect the period-end stock of the balance sheet data of reporting entities. In contrast, the data of other time series may relate to time intervals such as a month or year; these are flow time series. The data of income statements, the sum of transactions conducted in a period or the difference between the period-end stock data of two periods constitute flow time series.

The changes in the stock data in the balance sheet are caused in part by economic transactions. Transactions are changes in volume minus the effects of exchange rate changes, price changes and reclassifications, that is, (in the case of financial instruments) the creation or elimination of financial assets or liabilities between economic units or mutual agreements for their transfer. Changes in volume consist, in addition to transactions, of the exchange rate change effect, price changes and reclassifications.

The revaluation of assets (holding gains or losses) is the consequence of changes in the prices of assets.

Revaluation can be further broken down:

- in the case of securities, to the change in the price of the asset in the original currency and, in case of loans, to write-offs;
- and the effects of changes in exchange rates.

Other changes in the volume of assets and liabilities occur if the change in stock occurs for reasons other than the ordinary course of business. Examples may include:

- appearance or disappearance of assets not recognised as a transaction (e.g. disaster, goodwill);
- SDR allocation or withdrawal (at the initiative of the IMF);
- changes in statistical classification, structure or other statistical methodology (for instance, an entity is reclassified from one sector to another).

[9] In this respect Hungarian monetary statistics follow the requirements of the ECB, unlike financial accounts statistics, where interest accruals are included in the stock of the original instrument, i.e., as part of loans and deposits. The reason for the difference is that with this approach, transactions relating to loans and deposits include only actual lending and deposit taking transactions but not interest items.

Transactions can also be defined directly, through the observation of the transactions implemented by economic agents in the month. However, transactions are often difficult to quantify; therefore instead financial statistics tend to use the indirect (or balance sheet) method instead. The balance sheet method means that instead of observing transactions, we monitor price changes, loan write-offs, exchange rate changes and other changes in stock. In this case, transactions are calculated using the following formula:

In case of items denominated in forint:

$$F_t = (S_t - S_{t-1}) - C_t - V_t \quad (1)$$

where:

F_t = the transaction in the t^{th} period (net amount, the sum of transactions increasing and reducing stock)
S_{t-1} = (opening) position at the beginning of the period
S_t = (closing) position at the end of the period
C_t = other change in volume in the t^{th} period
V_t = changes in stock from market price changes and loan write-downs/write-offs
t = serial number of period

In case of items not denominated in forint:

$$F_t \text{ in foreign currency} = (S_t/\text{mid exchange rate at end of the } t^{th} \text{ month} - S_{t-1}/\text{mid exchange rate at end of } (t-1)^{th} \text{ month}) - C_t/\text{mean exchange rate in the } t^{th} \text{ month} - V_t/\text{mean exchange rate in the } t^{th} \text{ month} \quad (2)$$

$$F_t \text{ in HUF} = F_t \text{ in foreign currency} * \text{average exchange rate in the } t^{th} \text{ month}$$

where:

F_t = the transaction in the t^{th} period (net amount, the sum of transactions increasing and reducing stock)
S_{t-1} = (opening) position at the beginning of the period
S_t = (closing) position at the end of the period
C_t = other change in volume in the t^{th} period
V_t = changes in stock from market price changes and loan write-downs/write-offs
t = serial number of period

2.1.9 Seasonal adjustment, short-run indices

The series of figures characteristic of an economic activity are called time series if its elements are compiled on a regular basis (monthly, quarterly, etc.), with measurement methods consistent over time and in terms of the content of the presented quantity. This characteristic of time series assures the traceability of changes and their comparability over time. To capture the increase or decrease of figures, comparative indicators – growth indices – are generated.

Economic data are often influenced by distorting factors. These include more or less regular seasonal fluctuations in the time series within the year, which arise from the dependence of the economic activity on natural conditions, the season of year and on changes in the number of working days.

The simplest way to eliminate annual seasonal fluctuations is the use of annual indices, that is, the comparison of the data of a certain period (e.g. month) to the figures of the corresponding period in the previous year. Annual indices are very simple to calculate but they are not accurate and timely enough because by definition they are unable to reflect effects within a year. In practical terms this means, for instance, that if the corresponding figure in the previous year was lower than usual for any reason and the present figure takes the 'normal' value, the current index will be unreasonably high.

To assure that the growth index reflect changes fast and contains only effects that arose in the last period, the current figure must be compared with the previous one. After adjustment for seasonal effects we get time series where the data of adjacent periods are more comparable, thus monthly indices can be generated that 'immediately' reflect the most recent events and convey correct information.

On typical example for seasonality is recurring peaks in monetary aggregates each December, which is the result of year-end bonus payments. If we were to regard the change based on the easily calculated short-run index, i.e., comparing the December monetary aggregate figure with the previous one for November, we would falsely conclude a sudden jump in the growth rate, which tends to show little fluctuation and be moderately positive.

In the course of seasonal adjustment, the various components are defined so that their sum or multiple yields the time series containing the original data. Persistent long term (multi-year) changes are called trends, generally including fluctuations spanning more than one year. The 'random' component not explained by the calculation model is called 'noise'. When calculating seasonal factors, the calendar effects, which vary year from year, are filtered out separately, including the effects of holidays and in general the number of working days. The seasonally adjusted time series contain only the trend, the cycle and the noise. If this random component plays an important part in the changes of the time series, often it is also removed for the purposes of the analysis, i.e., the smoother trend figure is used for the calculation of the index.

Expressed as a formula (if the seasonal components are defined in a multiplicative form):

$$X_t = T_t * S_t * E_t \tag{3}$$

where:

X_t = the value of the time series excluding outliers and calendar effects in the t^{th} period
T_t = sum of the trend and cyclical components in the t^{th} period
S_t = value of seasonal components in the t^{th} period
E_t = value of the random component (noise) in the t^{th} period
t = serial number of period

In addition to seasonal effects, there are other effects external to the system which may divert the data from the value expected based on the trend and current seasonal effects. These one-off effects on the time series are called outliers. The types of outliers: additive outliers, transitory changes and level shifts (for instance Chart 4).

For the production of the growth indices of monetary aggregates the MNB uses the latter procedure (referring to the trend and cycle time series simply as trend), that is, it publishes monthly annualised short-run indices calculated from trend data:

$$I_t = (T_t/T_{t-1})^{12} \tag{4}$$

Where

I_t = the annual growth index of variable X_t in the t^{th} month
T_t = trend value of variable X_t in the t^{th} month
t = time (month)

The annualised index corresponds to an annual change where the monthly index in question prevails each month throughout the year. Annualisation, that is, multiplication by 12 in case of monthly data and multiplication by 4 in case of quarterly data is necessary because in practice the magnitude of the change is interpreted only on the annual level (e.g. annual interest rate, economic growth, inflation rate etc.).

It is an inevitable feature of the calculation method that depending on new data, older seasonally adjusted figures may also change, furthermore, the seasonally adjusted aggregated time series is not necessarily equal the sum of the two adjusted time series.

One approach to handling this problem is called **direct adjustment.** In this case, the seasonal adjustments of components and of aggregate data are performed simultaneously, independent of each other. In the case of **indirect adjustment** only the components are adjusted and the sum of the seasonally adjusted components is considered the seasonal adjustment of the aggregate. Indirect adjustment has the advantage that seasonally adjusted figures are 'additive' but the result is not optimal because when the indirectly adjusted aggregated time series are subjected to further seasonal adjustment, the procedure can identify a certain residual seasonality. When applying **mixed adjustment,** the differences resulting from direct and indirect adjustment are allocated among participants based on some criteria.

The MNB uses the TRAMO/SEATS procedure for the calculations, which applies an optimal mathematical model to the time series.

2.2 INTEREST RATE STATISTICS

In the interest rate statistics we present the average deposit and lending rates applied by credit institutions vis-à-vis the main money-holding sectors, i.e., households[10] and non-financial corporations as well as the new business for deposits and loans relating to the aforementioned sectors.

Average interest rates are published with two different weighs:

- with the stocks disclosed in balance sheet statistics, which characterise the outstanding amount of loans and deposits, and
- with the value of new business to present the developments in the latest period (month).

New business means any new financial agreement between the reporting agent and non-financial corporations or households instrument which specify for the first time the interest rate applicable to deposits or loans or that modifies existing loan or deposit contracts (maturity, interest rate conditions) in agreement with the customer. Automatic prolongation without the involvement of the customer, repricing or change from fixed interest rate products into variable rate products (or vice versa) are not considered as new business provided that such amendments were set in the original contracts. In the case of deposits with agreed maturity, additional payments should not regarded as new business.

New business does not include the following:

- restructured loans of the reporting agent, as defined in Government Decree No. 250/2000 (XII. 24.) on the special rules applicable to the reporting and bookkeeping obligations of credit institutions and financial enterprises arising through the renegotiation of existing loans of the client of the reporting entity due to repayment difficulties, as well as
- buffer accounts loans contracted according to Act LXXV of 2011, and
- bridging loans pursuant to Act IV of 2009 on government guaranteed home loans.

New business of loans is broken down by the period for of interest rate fixation, i.e., the length of the **interest rate fixation period.**

A product is considered to be **variable interest rate product** if the contract specifies that the interest rate is variable. In this case the financial institution is entitled to modify the interest rate within the framework of regulations. Variable rate loans include, for instance, loans where the interest rate is linked to some market variable such as the BUBOR.

[10] In interest rate statistics households include non-profit institutions serving households as well.

The **agreed interest rate** is the annual interest rate specified in the contract concluded with the customer. In the case of subsidised products the sum of the customer interest rate and the interest rate subsidy is the agreed interest rate. In the Hungarian market, the most prevalent example of subsidised products is the government subsidised housing loan, where the lending credit institution extends a home loan at rates below the market rate in the cases defined in the relevant government decree. Nevertheless, the credit institution can realise market income on these loans because the credit institution can receive funds below market rate or the government pays interest subsidy.

Similarly, in the case of refinanced loans to non-financial corporations or purchasing loans to households with 0% APRC (at this case the seller of the goods pays a contribution to the credit institution) interest rates must be reported including the interest rate subsidy.

In addition to the agreed interest rate, interest rate statistics contain the so-called **annualised interest rate** for every instrument. The purpose of calculating the annualised interest rate is to assure comparability of the interest rates of products with different maturities and interest paying periods. In terms of its content, the annualised interest rate on the deposit side is identical with the effective annual rate (EAR) and on the lending side, with the annual percentage rate (APRC), unless there are charges other than interest payment. Government decree 83/2010. (III. 25.) obliges credit institutions to disclose the so-called annual percentage rate of charge (APRC) for consumer loans and housing loans with an agreed maturity of more than 3 months. The annual percentage rate of charge shows the annual interest rate of the loan concerned assuming that the bank collects all the charges on the loan (e.g. appraisal fee, commitment fee, etc.) in the form of interest. On the deposit side in content the APRC corresponds to the EAR regulated in Government Decree 82/2010. (III. 25.).

The annualised interest rate calculation is based on the agreed interest rate. The agreed and annualised interest rates are equal if interest payment occurs only once a year. As the interest rate reset generally occurs more than once within a year, the annualised interest rate tends to be higher than the agreed interest rate. There are also products where the interest rate reset period is longer than one year, in which case the annualised interest rate is lower than the agreed interest rate. Products with interest rate reset periods over a year are so rare that in the case of published average interest rates, the annualised interest rate of a product is always higher than the agreed rate of interest.

For the relationship of **interest capitalization and principal payment** the following main scenarios may occur:

a) interest capitalization and principal repayment occur at regular intervals.

a/1. Interest capitalization and principal repayment occur at the same intervals, with identical frequencies.
a/2. Interest capitalization occurs more frequently than principal payment. (This includes the case where the principal payment is made at the end of the maturity in a lump sum.)
a/3. Principal payment occurs more frequently than interest capitalization.

b) Interest capitalization and principal repayment occur at irregular intervals.

In case a), where interest capitalisation occurs at least as frequently as principal payment (cases a/1 and a/2), formulas 5 and 6 below yield the same results, and formula 6 may be applied.

In case a/3. and in case b) only formula 5 an be used. (This includes, inter alia, interest subsidised products where the interest subsidy period and the interest payment period are different.)

The annualised interest rate is determined using the following two formulas:

$$\sum_{k=1}^{m} \frac{A_k}{(1+i)^{t_k}} = \sum_{k'=1}^{m'} \frac{A'_{k'}}{(1+i)^{t'_{k'}}} \qquad (5)$$

This formula can also be used if the loan is disbursed in one instalment or the deposit placed in one sum. In such cases, the left side of the formula contains the sum deposited or the amount of the loan.

Here:

A_k = amount of the k^{th} loan disbursement or deposit placement,
$A'_{k'}$ = amount of the k'^{th} instalment or deposit withdrawal (including interest),
m = number of disbursements or deposit placements,
m' = number of instalments or deposit withdrawals,
t_k = time of the k^{th} disbursement or deposit placement expressed as years or fractions of a year,
$t'_{k'}$ = time of the k'^{th} instalment or deposit withdrawal expressed as years or fractions of a year,
i = one hundredth of the annualised interest rate to be calculated.

This more complicated present value calculation formula can be applied to all loan and deposit products. The formula equates the initial cash-flow at the start of the transaction with the present value of future cash-flows of subsequent periods. The annualised interest rate is the internal rate of return where the present values of the cash flows on the two sides of the equation in formula 5 are equal.

Only formula 5 can be used where interest capitalisation and principal payment occurs at irregular intervals, as well as for the determination of the annualised interest rates of subsidised products if the periods for interest subsidisation and for interest rate reset are not identical.

$$X = \left(\frac{r_{sz}}{N}\right)^N - 1 \qquad (6)$$

Here:

X = annualised interest rate
r_{sz} = agreed annual interest rate
N = number of of interest capitalisation within a year, e.g. 2 in case of semi-annual interest capitalisation, 4 for quarterly interest payment, etc.

This more simple formula can be used only for some loan and deposit products. In practice, particularly for deposits, interest rates are generally reset monthly therefore this formula is generally used by credit institutions for the calculation of the annualised interest rate.

Formula 6 is also applicable to overnight deposits and overdraft loans if the interest rate capitalisation for deposits and interest rate resetting for loans occurs at regular intervals.

The published annualised interest rate is the weighted average of the annualised interest rates of deposit or loan products weighted by the new business volumes or amount of outstanding.

Based on the formula, the annualised interest rate for the amounts outstanding at month-end can be determined in two different ways. One way is to take into account the original start date of the product, the other is to take the date of observation of the stock as the start date and to calculate the annualised interest rate only for the remaining maturity. Reporting entities use the second method. In the case of stocks the annualised interest rate means the annualised interest rate taking into account the current interest rate and the remaining maturity of the loan or deposit.

The **annual percentage rate of charge** is the rate of return for which the amount of the loan granted equals to the present

value of instalments including charges[11]. The calculation of the annual percentage rate of charge published by the MNB is identical with the method of calculation of the annual percentage rate as defined in Government Decree 83/2010. (III. 25.) on the calculation, determination and publication of the annual percentage rate (However, APRC covers all consumer and housing loans irrespective of their maturity).

The reason for the difference between the two indicators is that the annual percentage rate of charge is based on the gross interest rate (increased by the subsidy, at housing loans adjusted by the interest rate subsidy and at purchasing loans adjusted by the contribution paid by the merchant) while the annual percentage rate is based only on the customer interest rate.

In its method of calculation, the annual percentage rate of charge is equal to the annualised interest rate, the only difference between the two indicators is the loan charges other than the interest rate. Consequently, with a few special exceptions, the annual percentage rate of charge of a product is always equal to or greater than the annualised interest rate. The two indicators can be identical only if there is no other charge related to the loan, which is frequently the case for loans granted by credit institutions to their employees. The two indicators may also be identical because cost components are incorporated in the interest rate. For the average credit institution, with the exception of a few unique products, the annual percentage rate of charge exceeds the average annualised interest rate for each category.

Statistics present data from the aspect of reporting entities rather than customers. This means that the published agreed rate of interest does not reveal the interest rates encountered by non-financial corporation or household clients when dealing with banks. The published interest rate data show the level of interest rate actually paid by credit institutions on deposits or actually collected on loans. This interest rate level is different from the interest rates advertised by credit institutions in several respects. In the case of government subsidised products (e.g. subsidised housing loans, start loans in the case of the sector of non-financial corporations, refinanced loans and, from 2012 on, 0% hire purchase loans) data contain the gross interest rate after the **addition of the interest rate subsidy or contribution.** In the case of interest rate subsidised products, the **'market' rate is determined** by adding to the interest rate charged by the reporting entity vis-à-vis the customer the rate of the government interest rate subsidy or of the third-party contribution. For instance, if the customer interest rate of a product is 4%, its interest rate subsidy 6%, the MNB will reckon with a gross interest rate of 10% in its statistics.

Gross interest rate of government subsidised housing loans

The government decree on government interest subsidies for housing purposes specifies two types of interest subsidies: supplementary interest rate subsidy (asset side) and the interest rate subsidy for mortgage bond financed loans (liability side).

Within housing loans, in the case of products with only asset side interest subsidies the asset-side interest subsidy is added to the interest rate charged to the customer.

In the case of products with interest subsidy only on the liability side or on both the asset and liability sides the interest rate adjustment is effected as follows in the case of non-mortgage banks:

- In the case of loans for the purchase of homes on the secondary market the interest rate charged to the customer must be increased by 40% of the government security yield for the original maturity closes to the interest rate reset period determined in the loan contract as published on the website of the ÁKK for the period concerned, as specified in Section 12 (3) of Government Decree 12/2001. (I. 31.) on government subsidies for housing purposes.

- In the case of loans for the purchase of newly built homes, 60% of the government securities yield specified above must be added to the interest rate charged to the customer.

[11] Of the cost components of loans, only the charges to be paid to credit institutions need to be taken into account (e.g. disbursement fee, annual management fee).

In the case of mortgage credit institution type reporting entities, the customer interest rate must be adjusted for the asset and liability side interest subsidy received in the month concerned.

Products with liability side interest rate subsidy include those loans of non-mortgage bank type reporting entities that are expected to be transferred or sold to a mortgage bank reporting entity.

The interest rates of **loans with preferential rates** are taken into account without any adjustment in the average interest rates. Examples include preferential rate – or zero rate – loans to the employees of credit institutions or loans granted under special campaigns.

In the case of **credit line agreements** not linked to a current account the total amount of the credit line is reported in the month when the contract is concluded as well as the interest rate specified in the contract even if the customer draws down the credit in instalments. In other words, the value of new business for loans contains the total amount of credit lines. If an existing credit line is increased during the month, new businesses contain only the amount of the credit line increase. There are also credit line agreements when it cannot be determined at the time of contracting in what currency and for what purpose the customer would use the loan. In such cases, as a departure from the general rules, the new businesses are presented in the month of disbursement and only up to the disbursed amount. Credit line agreements linked to current accounts are not included among new businesses: in the case of overdraft loans only the disbursed and outstanding sums are reflected in the month-end outstanding amounts figure.

Up to 2010, **credit card schemes** were treated and defined in interest rate statistics depending on whether they provide any interest free period.

In the case of interest bearing card loans (where the card only provides access to the loan) the loan is classified into the appropriate category depending on its purpose, for instance, among consumer loans or other loans in the household sector.

The data of credit card schemes offering interest free periods are disclosed among overdraft loans. As in the case of overdraft loans only the amount outstanding at month-end is observed, card loans in the interest-free period at the end of the month are included at the interest rate of 0% when calculating the average. Consequently, before 2010 the average interest rate of credit card loans, which represent a large part of overdraft loans, did not show the advertised high interest rates but the average interest rate of the 0% rate loans in the interest free period and the high-rate loans over the interest-free period, weighted with the outstanding amounts.

To facilitate the better analysis of interest rates, the structure of data collection in this field was changed in 2010. Since then, the interest rates on outstanding amounts of interest-bearing and interest-free credit card receivables have been reported separately depending on whether the credit card is in the interest free period on the last day of the period.

To reduce the burden on reporting entities, the MNB uses sampling instead of full reporting (census) when establishing the **reporting population.** The procedure relies on single-stage stratified sampling where two homogeneous strata are separated. In stratified sampling, one stratum consists of banks, branches of foreign banks and specialised credit institutions, the other one, co-operative credit institutions.

The two strata are subjected to different procedures:

1. for the first subpopulation, a census is taken;

2. for the second subpopulation, certain entities are selected for reporting from the sample ordered by the size of the balance sheet total, based on the following criteria:

- the size of the sample is determined to assure that at a **confidence level of 90%** the maximum estimation error does not exceed 10 basis points for any of the categories of instruments regarding the average interest rate of new business (criterion 1);

- the sample must contain at least 30% of the potential reporting population; however, if 30% is more than 100 institutions, a sample of **100 elements is sufficient** (criterion 2);

- **euro** denominated household and non-financial corporation **loans or deposits** of reporting entities must **amount to at least 75% of the total portfolio** (criterion 3).

The aggregate balance sheet total of the credit institutions currently in the sample represents more than 95% of the aggregated balance sheet total of all credit institutions. This means that the standard deviation of interest rates within a stratum may not exceed the standard deviation between strata; furthermore, the maximum error of estimation from the sample may not exceed 10 basis points at a confidence level of 95%.

2.3 CENTRAL BANK INTEREST RATES

Based on the authorisation contained in the Central Bank Act, the Magyar Nemzeti Bank determines the central bank base rate as the key policy rate, and publishes it in the Official Journal. At present the central bank base rate is identical with the interest rate payable on two-week HUF bonds issued by the central bank. In order to avoid extreme fluctuations in short term money market interest rates, the central bank establishes an interest rate corridor for the interest rates of O/N money market transactions. At present the interest rate corridor is symmetrical around the central bank base rate, its borders are determined by the interest rates of collateralised O/N loans and O/N deposits. Currently the interest rate of collateralised O/N loans is 1 percentage point higher than the central bank base rate while the interest rate of O/N deposits is 1 percentage point lower.

In addition to the above, the MNB ties the following interest rates to the central bank base rate:

- the interest rate of two-year central bank loans;
- the interest rate of two-week central bank bonds;
- interest rate payable on the minimum reserves deposited at the central bank;
- the penalty interest rate applied in the event of a reserve deficit in the required reserves.

2.4 MONEY AND FOREIGN EXCHANGE MARKETS

Money market transactions mean spot or forward HUF transactions of banks concluded with other banks through the treasury for maturities of one year or less.

Definition of transaction types on the foreign exchange market and FX open position

Spot transaction: Originally foreign currency conversion at an agreed price with maturity of two banking days or less.

Foreign currency forward: a contract between two parties to purchase and sell a defined amount of foreign currency, where the price is determined at the time the contract is set and delivery and financial settlement happens at a specified future date. Forward contracts may be fulfilled either with the delivery of the foreign currencies (deliverable forward), i.e., the exchange of the full amounts of the currencies, or by cash settlement of the difference (non-deliverable forward).

Currency swap: a derivative transaction where foreign currencies are exchanged. Currency swap transactions include simple currency swaps or FX swaps, cross currency interest rate swaps, only interest strip cross currency interest rate swaps and the deliverable forward transactions mentioned above.

- **Simple currency swap or FX swap:** an exchange rate contact for the spot sale/purchase of a given currency and the simultaneous forward purchase/sale of the same currency: spot + forward = currency swap.

- **Cross currency interest rate swap (CCIRS):** The parties agree to exchange interest payments and principals regarding a specified principal and period. The exchange relates to interest payments and principals in different currencies. The interest rates exchanged can be *fix-to-fix, floating-to-floating or basis swap,* or the agreement may relate to the

exchange of fixed interest rates for floating rates *(fix-to-floating)* or the exchange of floating rates for fixed rates *(floating-to-fix).* Beside foreign currency swaps this category includes HUF–foreign currency and foreign currency–HUF contracts. One subcategory of these contracts is the **basis swap,** where two different interests with changing basis are exchanged. The **mark-to-market** swap also belongs to this category. In this case, the parties to the contract alter one of the exchanged principals (primarily to reduce their counterparty [credit] risk arising from exchange rate fluctuations) under predetermined conditions and settle the difference with each other. Alternatively, the counterparty risk is managed by making a deposit while the conditions of the transaction remain unchanged.

- **Only interest strip cross currency interest rate swap:** an agreement concerning the interest rate swap of nominal values specified in different foreign currencies (or forint and foreign currency) where the nominal capital is not exchanged.

Interest rate swap (IRS): a derivative transaction that consists of the exchange of interest payments arising from a principal denominated in the same currency. By default, it is an agreement between two parties to exchange floating rate interest payments for fixed-rate interest payments (or vice versa), in respect of a specified principal and specified period. Transactions based on the exchange of interest payments denominated in different currencies (cross currency interest rate swap, only interest strip cross currency interest rate swap) are defined under the headings of **cross currency interest rate swap** and **only interest strip cross currency interest rate swap.**

Currency call option: the right acquired by the payment of an option fee to buy a currency, and the obligation to sell a currency, against a specific other currency, at a specified exchange rate on (or before) a certain date.

Currency put option: the right acquired by the payment of an option fee to sell a currency, and the obligation to buy a currency, against a specific other currency, at a specified exchange rate on (or before) a certain date.

Buying an option: the right acquired at the payment of an option fee to buy or sell a currency against a specific other currency at a specified exchange rate on (or before) a certain date; the buyer of the option decides whether to exercise the option.

Selling (writing) an option: the obligation undertaken at the receipt of an option premium to buy or sell a currency against a specific other currency at a specified exchange rate on (or before) a certain date; the decision on whether to exercise the option is not within the competence of the option writer.

Open FX position: net balance of the stocks, receivables and liabilities in various currencies (other than HUF); their HUF value depends on the FX-HUF exchange rate and its fluctuations.

- **Short FX position:** when the appreciation of the forint against a foreign currency results in increased gains in forint terms (FX liabilities exceed FX assets).

- **Long FX position:** when the depreciation of the forint against a foreign currency results in increased gains in forint terms (FX assets exceed FX liabilities).

- **Total open FX position:** the greater of the short and long positions against the forint (pursuant to Government Decree No. 244/2000. on the trading book).

- **On-balance open FX position:** open position arising from FX stocks in the balance sheet (assets less liabilities, aggregated currency by currency).

- **Off-balance open FX position:** open position arising from off-balance-sheet FX items, including positions arising from spot, forward, swap and option transactions, irrevocable guarantees (and other documents) or other future revenues or expenditures (assets minus liabilities).

3 Data releases

3.1 BALANCE SHEETS, MONETARY AGGREGATES

Characteristics of balance sheet statistical data releases:

- Depending on the quality of information available and the date of publication, releases may be preliminary or final. Preliminary data are published only in case of the statistical balance sheet of the MNB and the monetary base, which are adjusted with the final data in the release published on the last working day of the month.

- For ensuring transparency, MNB publishes the four monetary balance sheets in a relatively consolidated format, making the detailed data available in separate tables.

- The consolidated balance sheet of monetary financial institutions can be derived directly from the balance sheet of the central bank and of other monetary financial institutions by adding up the items not relating to monetary financial institutions in the two balance sheets. (However, the consolidated balance sheet contains the holdings of equity securities held and issued by monetary financial institutions.)

- The balance sheets are broken down by HUF and foreign currency as well.

- MFI claims and liabilities to euro area residents are detailed by main instruments and sectors.

3.1.1 Maturity categories

The balance sheets contain breakdowns by the following maturity categories (original maturities).

- Short term: where the maturity of the instrument is 1 year or less.

- Long term: where the maturity of the instrument is more than 1 year.

  - For certain instruments, over-1-year items are broken down to 'long term, up to 2 years' and 'long term, over 2 years',
  - For other instruments, additional information is provided in the form of the categories 'long term, up to 5 years' and 'long term, over 5 years'.

3.1.2 Seasonal adjustment

In the case of the seasonal adjustment of the monetary base and monetary aggregates, we disclose the directly adjusted data, thus the sum of the seasonally adjusted data of the components does not yield the seasonally adjusted value of the sum. Seasonally adjusted time series contain the outliers identified by the procedure, that is, the effects of unique factors external to the model.

In order to minimise retroactive effects, the model and its parameters are set for the time series ending in December of the previous year and the parameters thus obtained are used for the estimation of the current year data. In case of normal behaviour the model is re-estimated only based on the data for December of the current year. We continuously monitor the applicability of the model including the stability of the seasonal component and the accuracy of the forecast.

Growth indices are based on trend data rather than on seasonally adjusted data because experience shows that their time series is considerably smoother than that of the seasonally adjusted figures. The seasonally adjusted and trend figures for currency in circulation are prepared based on the original time series: the seasonally adjusted data are obtained without removing outliers while trend data are generated after their elimination.

Balance sheet statistics can be found on the MNB website, under *X. Monetary and other balance sheet statistics.*[12]

3.1.3 The statistical balance sheet of the MNB (Tables 1.a.1, 1.a.2, 1.a.3, 1.a.4)

The MNB's statistical balance sheet is complied in compliance with the accounting data compiled in accordance with the accounting rules applicable to the central bank (MNB Decree, 2000) for purposes of statistical analysis, presenting in separate tables the assets and liabilities of the central bank vis-à-vis the main sectors. Stocks are disclosed by original maturity. The balance sheet total does not contain the amount of repurchased bonds issued by the MNB abroad while it does include the stock of derivatives as part of 'remaining assets' and 'remaining liabilities'. The time series of stock data are available in a monthly breakdown since January 1998.

Sources of the data:

- the balance sheet report of the central bank;
- from the securities statistics, the stock of bonds issued by the MNB in Hungary and held by non-residents and the stock of bonds issued by the MNB abroad and held by residents.

Assets (Table 1.a.1)

Loans to other MFIs include O/N collateralised central bank loans as well as loans relating to regular or periodic tenders – such as the two-week, six-month and two-year collateralised loans.

Pursuant to the central bank act, since 1 January 2001 the MNB has not been allowed to lend to the central government. Therefore the stock of HUF loans published in the line **'Loans to the general government'**[13] before November 2007 contained the over-one-year HUF liabilities of the central government to the central bank that had originated in the preceding period.

Loans to other residents comprise loans to other financial corporations, non-financial corporations and households.

Holdings of securities other than shares issued by residents Up to March 2010, the central bank held exclusively HUF denominated securities issued by the central government. Since March 2010 the MNB has been allowed to purchase HUF mortgage bonds issued in Hungary.

Holdings of shares/other equity issued by residents comprises the stock of shares and other equity held by the central bank. Pursuant to the Act on the Magyar Nemzeti Bank, the MNB is not allowed to hold ownership interests in any foreign or domestic business entity, with the following exceptions:

- interest in organisations established in connection with the activity of the MNB;
- the MNB may have participations in business entities established for the operation of the national clearing system among credit institutions as well as for the settlement of securities and stock exchange transactions and for the storage, handling and registration of securities and for stock exchange operations.

[12] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok

[13] Within the general government, the MNB had lending relations only with the central government.

External assets comprise the foreign currency stock, monetary gold, SDR, the IMF quota, deposits with non-residents, debt securities issued by non-residents as well as foreign shares and other equity. The stock of external asset does not contain the stock of bonds issued by the MNB abroad and repurchased by the central bank. The write-down of external receivables, financial derivatives relating to non-residents, interest accruals and other prepayments are disclosed under Remaining assets rather than in this line.

Fixed assets comprise the stock of intangible non-financial assets.

Remaining assets contain asset-side items not classified elsewhere, such as:

- derivative instruments relating to the central government at market value;
- financial derivatives relating to abroad at market value;
- interest prepayments;
- prepayments and other accrued assets;
- suspense items;
- transit items, i.e., assets in the process of settlement relating to the execution of payments;
- inventories;
- write-off and write-downs of receivables (with a negative sign).

Liabilities (Table 1.a.2)

Currency in circulation comprises the entire stock of banknotes and coins in circulation including the stock of withdrawn banknotes and coins.

Of the **Deposits of other MFIs,** HUF deposits include the following:

- balance of the settlement (cash) accounts of other monetary financial institutions, which also serves the purpose of meeting the reserve requirement;
- overnight deposits;
- other short-term deposits.

Foreign currency deposits comprise the balances of foreign currency settlement accounts and foreign currency deposits with agreed maturity of less than one year.

Of the **Deposits of the central government:**

- forint deposits comprise (1) the Treasury account (KESZ), the cash settlement account of the Hungarian State Treasury; (2) the bank account of ÁKK Zrt.; (3) the account of the central budget with limited disposability – which is kept by the MNB pursuant to the Act on the Central Bank;

- deposits denominated in foreign currency comprise the deposits with agreed maturity, current account deposits and deposits with limited disposability of the central budget in foreign currencies.

The **Deposits of other residents** comprise the deposits of other financial corporations, non-financial corporations and households. For example, this line contains the cash account of the National Deposit Insurance Fund and the Investor Protection Fund, the current accounts of other financial corporations at the MNB (before 2001 also the deposit of the Hungarian Post Office kept for payment purposes).

Debt securities issued (held by residents) consists of the MNB forint bonds issued in Hungary and held by residents and MNB foreign currency bonds issued abroad and held by residents.

The stock of **External liabilities** does not include the stock of bonds issued by the MNB abroad and repurchased by the central bank. The majority of the external liabilities of the central bank are long term, mostly originating from bond issues

abroad. This item also includes the part of the IMF quota paid in domestic currency because the International Monetary Fund keeps this amount as a deposit at the central bank. MNB forint bonds issued in Hungary and held by non-residents are also disclosed here.

Capital and reserves includes the capital and reserves of the central bank, however, the equalisation reserves are included under Remaining liabilities.

Remaining liabilities contain liability-side items not classified elsewhere, such as:

- stock of derivatives relating to the central government, which are liabilities resulting from swap transactions for maturities of more than one year concluded with the ÁKK Zrt. as counterparty. Most of these are hedging transactions relating to loans assumed by the central government under the debt swap, another part represents swap transactions to hedge the foreign exchange and interest rate risks of the foreign currency debt.
- derivatives relating to non-residents at market value;
- interest accruals;
- accrued expenses and other accrued liabilities;
- provisions;
- contingent liabilities;
- funds in transit;
- equalisation reserve for the exchange rate of the forint;
- equalisation reserve for foreign currency securities;
- yield of MNB bonds issued in Hungary.

Transactions on the asset and liability sides (Tables 1.a.3, 1.a.4)

Tables 1.a.3 and 1.a.4 contain the transaction data of the MNB balance sheet in the same structure as the stock tables. The lines in the tables have the same content as the balance sheet tables presenting the stocks. Transactions are calculated by deducting from the changes in stock in the current month, computed as the difference between the closing stocks of the current month and the previous month, the effects of price changes, other changes in volume and exchange rate changes in the current month. Transaction data come directly from the data reporting.

3.1.4 The average balance sheet of the MNB (Table 1.a.5)

The average balance sheet of the MNB contains the average of daily stock figures. Its main purpose is to present the forint liquidity position of credit institutions.

The content of **External assets** is identical with the External assets line of the month-end balance sheet.

The **Two-week loans of credit institutions, Six-month loans of credit institutions** and **Two-year loans of credit institutions** are presented in separate lines on the asset side of the average balance sheet.

Swap claims on foreign currency with credit institutions contains the nominal value of O/N and three-month EUR/HUF swaps between credit institutions, on a gross basis. As a result of the method of presentation, the amounts on the asset and liability sides are identical.

Swap claims on HUF related to final payment euro selling tender with credit institutions[14] presents swaps between October 2011 and March 2012 separately, also on a gross basis, at the nominal value of transactions in the average balance sheet of the MNB.

[14] More information on euro selling tenders is available at: http://english.mnb.hu/Monetaris_politika/mnben_jegybanki_eszkoztar/mnben_eszkoztar_tenderek.

Remaining assets contain asset-side items not classified elsewhere, such as:

- loans of resident credit institutions (excluding two-week, six-month and two-year loans);
- the loans of other residents;
- debt securities issued by residents;
- shares and other equity issued by residents;
- fixed assets;
- other items.

Currency in circulation comprises the entire stock of banknotes and coins in circulation including the stock of withdrawn notes and coins.

The **Current account balances of other MFIs** shows the balance of the settlement (cash) accounts of other monetary financial institutions, which also serves the purpose of meeting the reserve requirement.

Overnight deposits of other MFIs are shown in a separate line.

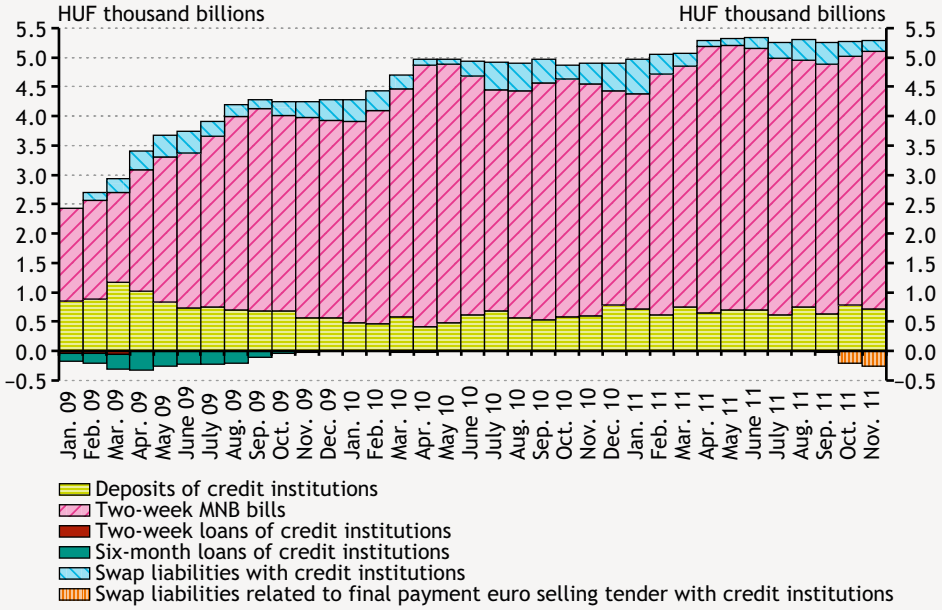
Other deposits of other MFIs comprise the deposits of credit institutions not included in the previous categories, such as the foreign currency deposits of credit institutions.

The content of **Deposits of central government** is identical with the line of the same description in Table 1.a.2.

In addition to the total stock of the **Two-week MNB bills,** since early 2011 we have separately disclosed the stocks held by **residents** and **non-residents** – this breakdown is backdated to the entire time series.

Swap liabilities to forint with credit institutions contains the nominal value of O/N and three-month EUR/HUF swaps between credit institutions, on a gross basis.

Chart 1
Use of various central bank instruments – monthly average stock



Swap liabilities to foreign currency related to final payment euro selling tender with credit institutions presents swaps between October 2011 and March 2012, until the end of the programme, again on a gross basis, at the nominal value of transactions in the average balance sheet of the MNB.

Remaining liabilities contain liability-side items not classified elsewhere, such as:

- other domestic deposits;
- capital and reserves;
- other items.

3.1.5 Monetary base (Tables 1.b.1 and 1.b.2)

In Hungarian monetary statistics, the **monetary base** (M0) is the sum of

- the monthly average stock of banknotes and coins in circulation, and
- the monthly average stock of current account balances and O/N deposits of other MFIs.

Table 1.b.1 presents the components of the monetary base and its changes using year/year type indices, that is, the ratio of the current period figures to the figures of the corresponding period 12 months before.

Table 1.b.2 contains the following data:

- seasonally adjusted data of the monetary base derived from the original time series of the monetary base – including outliers;
- the trend of the monetary base, which does not include outliers resulting from seasonal and other external effects (for instance, the transitory change of M0 due to the central bank intervention of January and February 2003);
- the annualised growth index of the monetary base, which is a one-month short-run index calculated from trend data.

The annualised growth index of currency in circulation is also calculated with a method similar to the one used for the monetary base.

Chart 2
Components of the monetary base

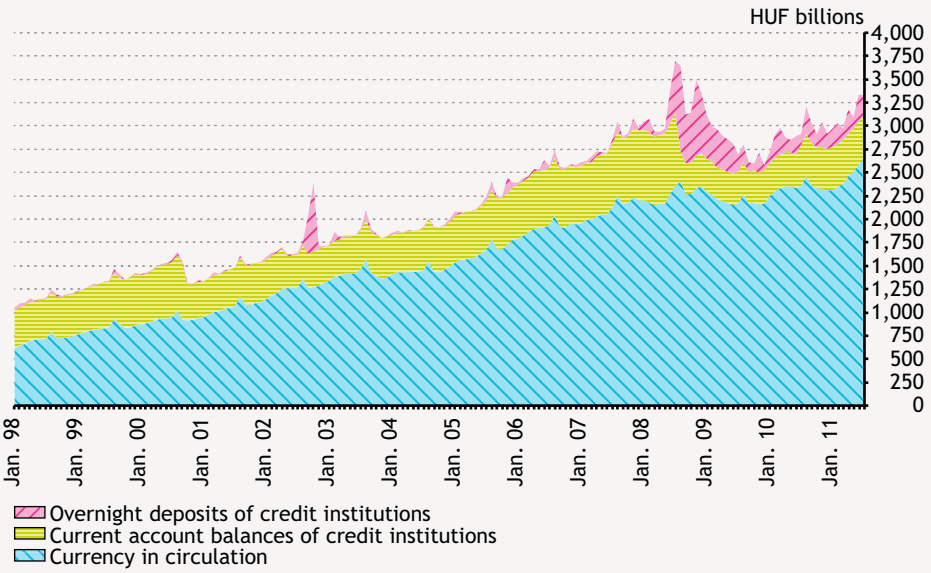
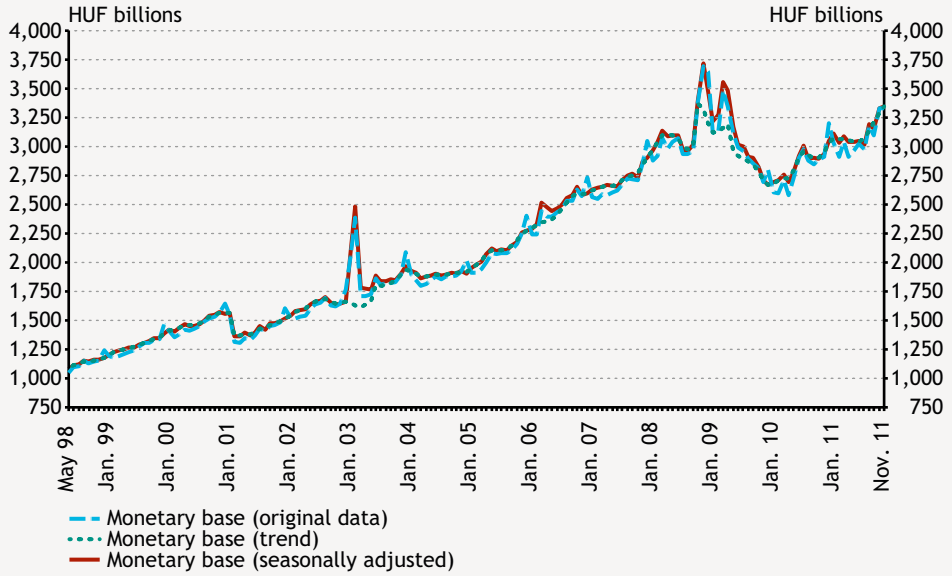


Chart 3
Seasonal adjustment of the monetary base



The seasonally adjusted figures published until December 2010 on the current account balances of other MFIs are generated from the reported balances of current accounts, thus they also contain level shifts due to changes in the level of the reserve requirement. Effects of the changes in the reserve rate and the reserve base are filtered out of the trend data. Growth indices are one-month, short-run annualised growth indices calculated from the smoother trend data.

Because of the six-monthly level shifts of the stock data due to the optional reserve ratio regime,[15] no seasonal adjustment is performed on the stock data of the current account balances of other MFIs since January 2011.

As the stock of O/N deposits is highly variable, often assuming the value of zero, we perform no seasonal adjustment on this time series.

3.1.6 Aggregated balance sheet of other MFIs and Aggregated balance sheet of credit institutions (Tables 2.a.1, 2.a.2, 2.a.3, 2.a.4 and 2.b.1, 2.b.2, 2.b.3, 2.b.4)

There are two balance sheets drawn up in respect of institutions in the sector of other MFIs:

- the aggregated balance sheet of credit institutions, which contains the balance sheet data of banks, specialised credit institutions, branches of non-resident credit institutions in Hungary and co-operative credit institutions,
- and the aggregated balance sheet of other MFIs including the figures of money market funds.

Sources of the data

- the monthly balance sheet data reporting of credit institutions to the MNB;
- monthly, and before 2012 annual, balance sheet data reporting of investment funds qualifying as money market funds;
- statistical reports from credit institutions, fund managers and custodians on the ownership structure on securities issued by monetary financial institutions and on the securities held by money market funds.

[15] Decree No. 13/2010. (IX. 6.) of the MNB has allowed, since 1 October 2010, credit institution subject to reserving requirements to choose a reserve ratio from among the ratios specified in Section 1 (2) of the decree with a frequency of up to twice a year.

The **Aggregated balance sheet of other MFIs** shows the month-end stock of claims on and liabilities to the various sectors. Securities held by monetary financial institutions are presented on a net basis, adjusted by write-off and write-downs or valuation differences while all other items are show on a gross basis.

The aggregated balance sheet total of other MFIs is identical with the aggregated balance sheet total of the balance sheets of credit institutions and money market funds[16] minus the stock of shares issued and repurchased by credit institutions as these do not constitute liabilities to any sector.

The difference between the aggregated balance sheet of other MFIs and the balance sheet of money market funds yields the **aggregated balance sheet of credit institutions.** The rules explained in the previous paragraph also apply to the aggregated balance sheet of credit institutions.

The **Cash** stock consists of the stock of Hungarian and foreign currencies.

Apart from regular lending, **Loans to residents** also include

- deposits of the reporting credit institution in other credit institutions,
- receivables from financial leases and factoring,
- overdue loans not yet written off,
- purchased receivables,
- unpaid, overdue but not suspended interest accruals;
- debt securities that are non-negotiable and cannot be traded on secondary markets,
- negotiable loans,
- subordinated debt in the form of loans;
- claims from repurchase agreements and
- claims disclosed within the loan portfolio following repo adjustment.

The asset items **Holdings of securities other than shares issued by residents / Holdings of shares/other equity issued by residents** show, by sector, the stock of securities issued by the resident sector and held by other monetary financial institutions.

The asset item **Money market shares/units** comprises the investment shares of money market funds held by other resident MFIs.

External assets show the claims of other MFIs on non-residents. The write-offs and write-downs on external receivables, external financial derivatives, interest accruals and other prepayments are disclosed under Remaining assets rather than in this line.

Fixed assets are non-financial instruments; they include long-term non-financial assets (e.g. land, buildings), equipment, software, etc.

Remaining assets comprise both financial and non-financial instruments. This category consists of asset-side items that are not included elsewhere for methodological reasons, such as

- receivables arising from investment services;
- interest prepayments;
- prepayments and other accrued assets;
- transit items;
- suspense items;
- on-balance-sheet financial derivatives with a positive value;

[16] Repo adjusted balance sheet totals need to be used. These may be different from the reported holdings.

- write-down of receivables (with a negative sign);
- other items.

Deposits of residents include deposits as well as subordinated liabilities, loans taken out and the stock of the capital contributions of cooperative members. Within deposits, liabilities from repo-type transactions are presented separately from other deposits in their own column, without any sectoral breakdown.

The stock of liability items **Debt securities issued (held by residents) / Money market fund shares/units (held by residents):** items on the ownership composition of securities come from securities statistics and they are based on the securities information received from custodians.

External liabilities comprise deposits by and loans from non-residents as well as debt securities purchased by non-residents. Other liability items relating to non-residents, for example interest accruals, other accrued expenses etc. relating to non-residents, are disclosed under Remaining liabilities. Liabilities to non-residents do not include participations of non-residents in other monetary financial institutions. Such items are included in equity capital.

Capital and reserves show the stock of the

- capital;
- subscribed capital not yet paid;
- balance sheet profit of monetary financial institutions in accordance with the accounting rules.

The capital of money market funds is the net asset value of the investment units.

Remaining liabilities contain liability-side items not classified elsewhere, such as:

- interest accruals;
- accrued expenses and other accrued liabilities;
- receivables arising from investment services;
- provisions;
- liability-type suspense items;
- transit items and
- the stock of authentic repurchase agreements and other than repo transactions.

Tables 2.a.3, 2.a.4 and 2.b.3, 2.b.4 contain the transaction data of the aggregated balance sheets of other MFIs and, separately, of credit institutions in the same structure as the stock tables. The lines in the tables have the same content as the balance sheet tables presenting the stocks. Transactions are calculated as explained in Chapter 2.1.8.

3.1.7 Consolidated balance sheet of MFIs (Tables 3.1, 3.2, 3.3 and 3.4)

The consolidated balance sheet is a report presenting the month-end stock of the assets and liabilities of the MNB and other MFIs vis-à-vis other sectors, which aggregates the various items and consolidates the relationships of the MNB and other monetary financial institutions with each other. Due to the similar structures of the three balance sheets (of the MNB, credit institutions and money market funds), aggregation and consolidation can be performed by balance sheet item corresponding to the structure of the consolidated balance sheet, with a few minor exceptions, thus the consolidated balance sheet can be derived from the MNB balance sheet and the aggregated balance sheet of other MFIs.

The assets and liabilities of monetary financial institution vis-à-vis one another do not reconcile fully due to reporting errors and valuation differences. The difference is shown as a separate item in the statistical balance sheet.

The **sources of data** are the same as the sources for the aggregated balance sheet of other MFIs and the aggregate balance sheet of credit institutions.

Securities held by monetary financial institutions are presented on a net basis, adjusted by write-downs and valuation differences while all other items are show on a gross basis.

Holdings of shares/other equity issued by residents shows the stock of shares/equities issued by the resident sectors and held by monetary financial institutions, including, in line with the IMF rules, the stock of equity securities issued by domestic monetary financial institutions (i.e., these are not consolidated). Contrary to accounting rules, the stock of investment shares issued by resident investment funds are also included in this category. Furthermore, less liquid investments (participations) of credit institutions obtained for reasons of business policy or to mitigate losses are also presented here.

Currency in circulation outside MFIs contains the part of the total stock of banknotes and coins in circulation that is held by residents other than monetary financial institutions. In the absence of sufficient information, for purposes of the calculation it is assumed that the amount held by non-residents is zero.

The **Excess of inter-MFI liabilities** is attributable to valuation differences (e.g. securities are reported at historical value on the assets side and at nominal value on the liability side) and to reporting errors.

Debt securities issued (held by residents outside MFIs) comprises the part of debt securities issued by monetary financial institutions – bonds, deposit certificates, mortgage bond and other debt securities – held by residents other than MFIs. Figures on the ownership composition of securities come from securities statistics and they are based on the securities information received from custodians.

Tables 3.3 and 3.4 contain the transaction data of monetary financial institution in the same structure as the stock tables. The lines in the tables have the same content as the balance sheet tables presenting the stocks. Transactions are calculated as explained in Chapter 2.1.8.

The consolidated balance sheet does not reveal the stock of monetary aggregates directly, thus those data are disclosed in a separate table.

3.1.8 Monetary aggregates and counterparts (Tables 4.1, 4.2, 4.3, 4.4 and 4.5)

The MNB publishes three indicators of monetary aggregates of decreasingly liquid components. These are the narrow monetary aggregate (M1), the intermediate monetary aggregate (M2) and the broad monetary aggregate (M3).

Until December 2005 the MNB calculated and used M4, a monetary indicator even broader than M3. It contained the components of M3 plus the stock of government securities held by residents other than credit institutions and the central bank – however, this indicator does not satisfy the criteria for monetary aggregates as government securities constitute money-neutral liabilities of the general government.

The most liquid financial liabilities make up **M1,** the **narrowest monetary aggregate.** In Hungarian monetary statistics, M1 includes cash held by –money-holding sectors – resident sectors other than MFIs, and overnight deposits irrespective of their denomination.

M2, the **intermediate monetary aggregate** comprises the elements of M1 plus deposits with an agreed maturity of up to two years.

M3, the **broad monetary aggregate** includes M2 as well as those marketable financial instruments issued by resident monetary financial institution and held by the money-holding sectors that are close substitutes of bank deposits. These are

- funds from repo-type transactions;
- shares/units of money market funds held by residents other than monetary financial institutions and
- debt securities with original maturity of up to two years.

Chart 4
Stock of M3 and its components

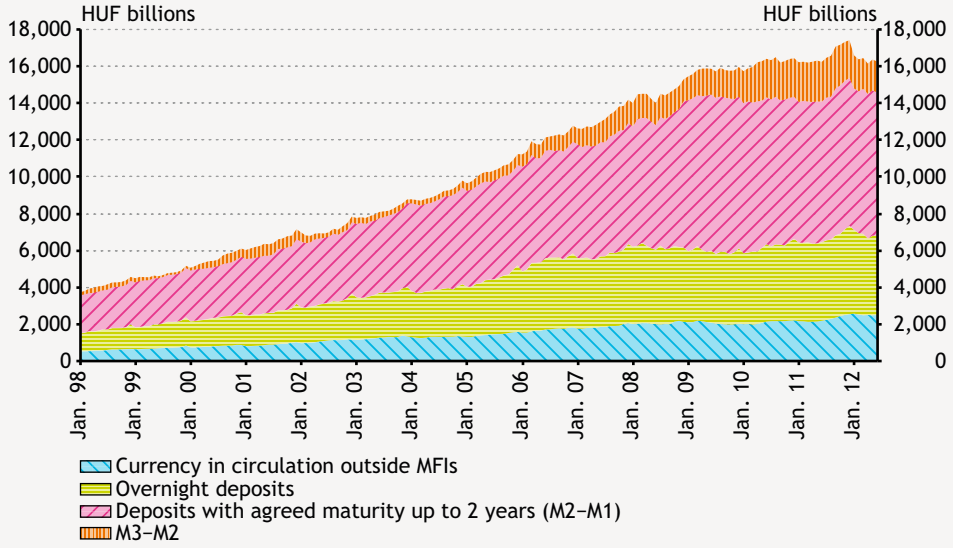


Chart 5
Seasonal adjustment of M3

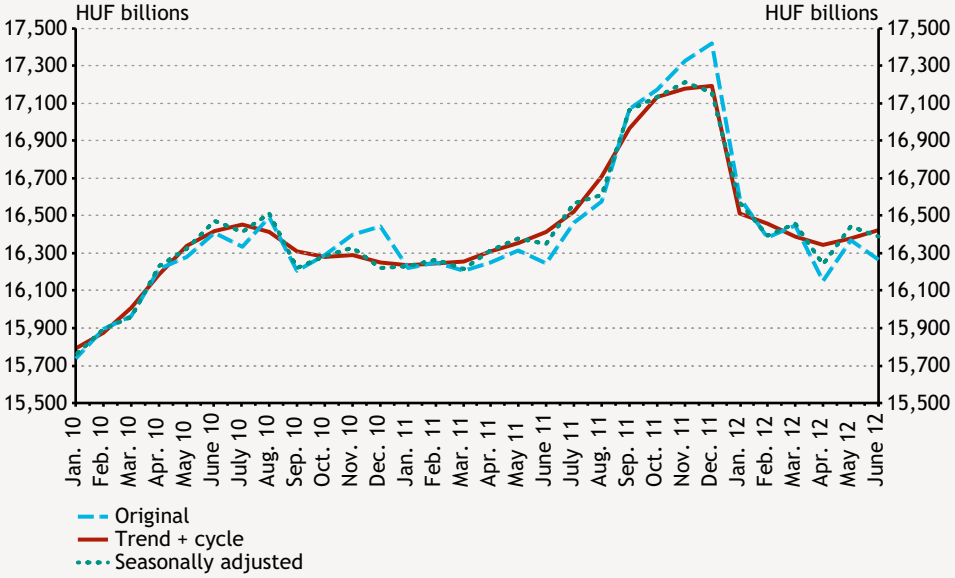
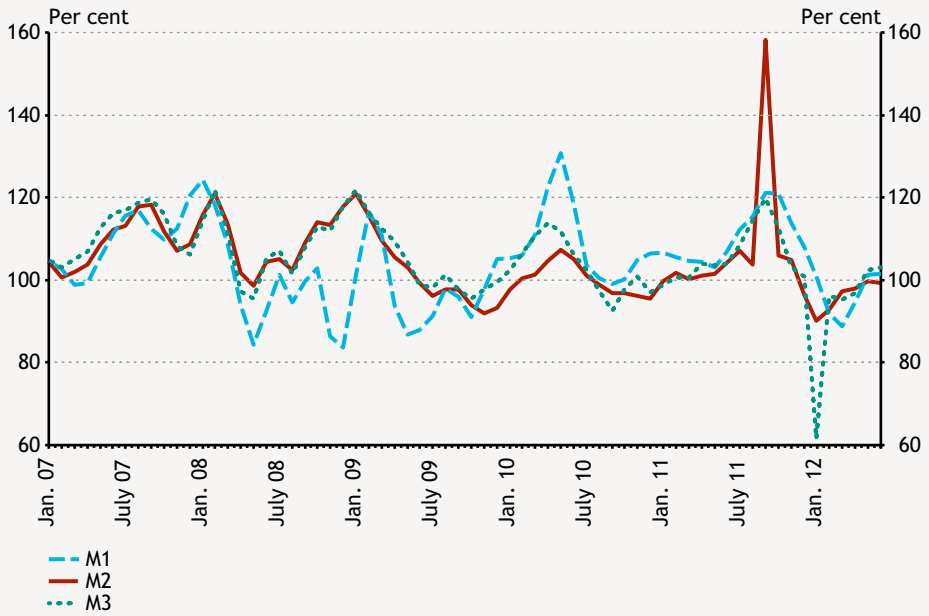


Table 4.1 presents the original, seasonally unadjusted month-end levels of the monetary aggregates and their components. Table 4.2 shows seasonally adjusted data as well as the trend and annualised monthly growth index of monetary aggregates. Table 4.3. presents the main counterparts of M3.

Tables 4.4 and 4.5 contain the transaction data of monetary aggregates and counterparts in the same structure as the stock tables, with the only exception of indices. The lines in the tables have the same content as the balance sheet tables presenting the stocks. Transactions are calculated as explained in Chapter 2.1.8.

Tables 4.6, 4.7, 4.8, 4.9, 4.10 and 4.11 are so-called 'flow tables' which contain, going back to January 2005, the closing and opening stocks of the instruments in the table for each month as well as the stock change obtained as the difference

Chart 6
Growth indices of monetary aggregates



between the two figures, further broken down to transactions, revaluations due to foreign exchange rate changes, other revaluation adjustments/loan loss provisions and other reclassifications and other adjustments.

The various tables contain the following information:

- **Table 4.6:** Components explaining monthly changes in stocks of M3;
- **Table 4.7:** Components explaining monthly changes in stocks of longer-term MFI liabilities
- **Table 4.8:** Components explaining monthly changes in stocks of claims on general government;
- **Table 4.9:** Components explaining monthly changes in stocks of claims on other residents
- **Table 4.10:** Components explaining monthly changes in stocks of loans to other residents;
- **Table 4.11:** Components explaining monthly changes in stocks of net external assets

3.1.9 Further breakdown of the items in the consolidated balance sheet (Tables 5.1–11.2)

Contents of the tables:

- MFI loans by counterparties, type and original maturity (Tables 5);
- Deposits held with MFIs by counterparty, instrument and maturity (Tables 6);
- Securities issued by residents (Tables 7);
- External (S.2) assets and liabilities (Table 8);
- MFI claims and liabilities to euro area residents (Tables 9);
- MFI claims and liabilities to other non-residents (outside euro area residents) (Tables 10, quarterly);
- Currency analysis of certain assets and liabilities of MFIs (Tables 11, quarterly).

Within monetary statistics balance sheet publications there is a separate report devoted to the breakdown of consumer loans to households by type. Thus there are separate lines for personal loans, car purchase loans, mortgage loans for consumption purpose, consumer loans for purchase of goods or other purposes.

In addition, the following information is also published with monthly frequency:

- stock of housing loans of non-financial corporations, households and sole proprietors by original maturity and currency;
- accrued interest on MFI loans and deposits by sector;
- monthly financing of non-financial corporations and households on the basis of data provided by domestic credit institutions and preliminary data on securities.

3.2 CREDITS OF NON-FINANCIAL CORPORATION SECTOR BY BRANCHES

The assets of banks, specialised credit institutions, branches of non-resident credit institutions with balance sheet totals above HUF 100 billion and resident co-operative credit institutions with balance sheet totals above HUF 6 billion[17] vis-à-vis non-financial corporations are detailed in the quarterly time series on the MNB website[18] in a breakdown by the NACE classification.

Loans include the following claims of credit institutions on non-financial corporations:

- overdrafts,
- loans for the purchase of securities,
- lending for house purchase,
- other loans and loan-type assets,
- claims from authentic repurchase agreement and repo agreements,
- bill of exchange claims,
- purchased receivables,
- financial leases.

Loans are reported at gross book value. Stock data for loans are disclosed in separate tables in the following breakdown:

- Total loans
  - Forint loans
    - Long term forint loans
    - Overdraft forint loans
    - Short term loans (other than overdraft)
  - FX loans
    - Long term FX loans
    - Short term FX loans including overdraft FX loans.

The MNB has published the time series of the data quarterly since December 1995. The time series contain the effects of the following methodological changes:

- Data for the pre-1998 period do not include financial leases.

- Overdrafts of co-operative credit institutions for the period up to 1998 are not shown separately. They are included in other short-term loans.

- Up to March 2001 the sector of non-financial corporations consisted of legal entities and small enterprises. Since that time, non-financial corporations and associated enterprises have also been included. At the new sector classification the two categories were assumed to be equivalents, ignoring the fact that, the previous category contained sole proprietors but did not contained non-profit institutions serving non-financial corporations.

- Up to December 2002, the 'loans of MFIs not covered' consisted of data on co-operative credit institutions and potential adjustments, while at present this items includes branches of non-resident credit institutions with balance sheet totals

[17] Based on the balance sheet totals reported in the supervisory balance sheet as of 30 June of the previous year.
[18] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: X. Monetary and other balance sheet statistics. Credits of non-financial corporations by branches.

below HUF 100 billion and co-operative credit institutions with balance sheet totals below HUF 6 billion.

- Guarantees called were included in overdrafts up to 2003. From 2003, they are included in other short-term loans.
- Ad-hoc loans were recorded as part of overdrafts up to 2003. From 2003, they are included in other short-term loans.
- From 2003, authentic repurchase agreements are included in loans. Prior to 2003 they were shown under corrections, together with changes over time.
- Before 2008, waste management was part of the economic branch of other non-metallic mineral products.
- Before 2008, postal services and telecommunication belonged to the economic branch of transport and storage.
- Before 2008, economic services were part of the economic branch of real estate activities.
- Before 2008, water supply belonged to the economic branch of electricity, gas and steam supply.

3.3 INTEREST RATES OF THE LOANS AND DEPOSITS OF THE SECTORS OF NON-FINANCIAL CORPORATIONS AND HOUSEHOLDS

The MNB has observed the interest rates applied by credit institutions on loans and deposits of households and non-financial corporations since the 1990s. The data are also available on the MNB website.[19]

The interest statistics data can be regarded as homogeneous time series even though, due to certain methodological changes, the content of the data has changed slightly as compared to the initial data content. The interest rate statistics of the Magyar Nemzeti Bank for households and non-financial corporations assure the comparability of content internationally and in particular within the European Union. The compilation of data relating to HUF interest rates has been fully in line with the requirements of the European Central Bank (ECB, 2004, ECB, 2010) since January 2003. Since January 2005 we have also been collecting data on the loans and deposits of resident non-financial corporations and households denominated in euro and Swiss franc.

The MNB publishes the following interest statistical data for both sectors (since January 2003 for HUF items and since 2005 for EUR and CHF items):

- value of new business,
- agreed interest rate new business,
- annualised interest rate of new business,
- annual percentage rate of charge of new business,[20]
- interest rates on outstanding amounts at the end of the month,
- annualised interest rates on outstanding amounts at the end of the month,
- seasonally adjusted values of new business.

Previously data related to new deposits and loan disbursements; since 2003 interest statistics have been **collected on new businesses.** This observation principle is significant mainly in case of loans because at this instrument the contracting and disbursement time may be a considerably different. The reporting entity must report the interest rate know at the time of contract even though these loans are disbursed later.[21] Since January 2003 the MNB has broken down loans granted according to the interest fixation period rather than original maturity. This corresponds almost completely to the definition

[19] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: XI. Money and capital markets.

[20] The annual percentage rate of charge is relevant only for the consumer and housing loans of the household sector.

[21] If the interest rate is known at the time of the conclusion of the contract. There are also credit line agreements when it is not know at the time of contracting in what currency and for what purpose the customer would use the loan. Such contracts are the exception, where we request data only upon the first disbursement rather than at the time the contract is made.

used earlier for fixed interest and variable interest. The interest rate data for before and after January 2003 are fitted accordingly in the time series.

Interest rates published after January 2005, contain interest rates of loans and deposits denominated both in forints[22] and in euro. Since January 2005 we have published the interest rates of personal, car purchase, consumer loans for purchase of goods or other purposes and mortgage loans for consumption purposes denominated in HUF, EUR and CHF[23] as well as housing loans denominated in CHF, together with the amounts of new business.

The loans of non-financial corporations are classified not only by the interest rate fixation period but also by the **amount loan.** The reason for this, that within the sector of non-financial corporations large corporations with their smaller credit risk obtain loans at better interest rates than small businesses do.

In the case of households, loans are broken down more detailed by the **type of loans** rather than their amount. In this sector we collect and publish data on the following loan types: overdraft, consumer loan, housing loan, other loan. Since 2005, consumer loans have been broken down to personal loans, car purchase loans, consumer loans for purchase of goods and other purposes and mortgage loan categories.

3.3.1 Methodology of calculating the aggregated average in interest rate statistics

The calculation of the average interest rates and annual percentage rates published in our website and press releases is a multi-stage process. The different levels of aggregation are illustrated by Table 3.

Table 3
Methodology of aggregated averaging

Levels of aggregation (average)	Stages of aggregation (average)	Who aggregates?
4	Average interest rate calculated for each reporting entity	Magyar Nemzeti Bank
3	Average interest rate on all products of the reporting entity (e.g. consumer loan)	reporting entity
2	Average interest rate on one product (e.g. consumer loans for purchase of goods)	reporting entity
1	Interest rate agreed in contract	reporting entity

Changes in the average interest rate are caused by the combination of changes in individual interest rates and in the composition of loans. Change in composition means that the ratio of the various loan types changes between the various products and/or within the products from one observation period to the other. The composition effect may have a significant impact on average interest rates if the number of transactions is low.

The interest rates reported to the MNB are averages themselves, as shown in Table 3.

The average interest rate for the stock outstanding does not include the average rate of non-performing loans.

[22] The time series of the detailed data for HUF denominated consumer loans starts in March 2004, but in 2004 no data was available on mortgage loans for housing.

[23] In case of CHF denominated loans we also publish interest rate data on housing loans, showing the corresponding amounts outstanding as well. For other denominations, the stock data for the sector of monetary financial institutions are found in the monetary balance sheet statistics.

3.3.2 Treatment of subsidised loans in the interest rate statistics

Until June 2009 the weighted average interest rate on housing loans contained data for both market-rate and subsidised loans (the Government abolished the subsidy as of 1 July 2009). The interest rate of loans subsidised by the government include the amount of the government subsidy.

In their reporting to the MNB reporting entities calculated the interest rates of interest subsidised loans they granted by adding the rate of the government subsidy to the interest rate they charged to their customers. In the case of subsidised loans received by credit institutions, the difference of the reference yield of government securities closest to the term of the loan and the interest rate on the funds borrowed on the interbank market was added to the interest rate. (For more detail, see Chapter 2.2. Interest rate statistics.)

On 1 October 2009 the Government reopened the programme of subsidised lending for house purchase, thus the rate of the government subsidy is included in the interest rates of government subsidised loans again.

In the case of the hire purchase loans of households the merchant often pays a contribution to the credit institution. In this event, the interest rate payable by the client may be different from the rate actually received by the credit institution.

Since 1 January 2012 the interest rate of hire purchase loans applied vis-à-vis clients must also be adjusted for the supplementary contribution, just as in the case of corporate loans.

3.3.3 Treatment of the loan arrangements under the mortgage relief programme launched by the Government in interest rate statistics

- The HUF denominated housing loans and mortgage loans for consumption purposes of households do not include the data of the new business for **government bridging loans**[24] as these new loan agreements are not considered to be transactions expanding volumes in the credit market.

- The data on new business of households and non-financial corporations do not include **restructured loans**[25] either.

- The HUF denominated housing loans and home equity loans of households do not include the data of the new business for **buffer accounts**[26] either.

3.3.4 Seasonal adjustment of interest statistical data

From 2008, seasonal adjustments have been made to the following time series presenting the value of new business:

- forint and euro loans extended to non-financial corporations with a value below EUR 1 million and above EUR 1 million;
- forint and euro deposits of non-financial corporations;
- forint and euro deposits of households;
- forint denominated housing, other mortgage and personal loans to households.

[24] Pursuant to Act IV of 2009, government bridging loans are forint loans at a 0% rate of interest, extended with a government guarantee, with the purpose of maintaining the debtors' ability to service their debts.

[25] Restructured loans are the loans specified in Government Decree No. 250/2000 (XII. 24.) on the special rules applicable to the reporting and bookkeeping obligations of credit institutions and financial enterprises.

[26] Buffer account is a loan disbursed by the lending financial institution based on the credit line agreement applicable to the buffer account during the fixed rate period. The purpose of the loan is to finance the part of the instalment that the borrower does not pay when servicing a foreign currency denominated loan because of the application of the fixed exchange rate. The lending financial institution is the financial institution considered to be the creditor in respect of the foreign currency denominated loan, and a mortgage right can be enforced for the real property serving as collateral for the original foreign currency loan.

Up to March 2010 seasonal adjustments were made to time series on the foreign currency housing and other mortgage loans of households published on the website and in press releases; however, due to legislative changes[27] the value of new business for such loans has dropped to practically zero,[28] thus seasonally adjusted data provide no additional information. Consequently, since that time only forint-denominated housing, personal and home equity loans have been seasonally adjusted.

3.3.5 Treatment of overnight loans and overdrafts

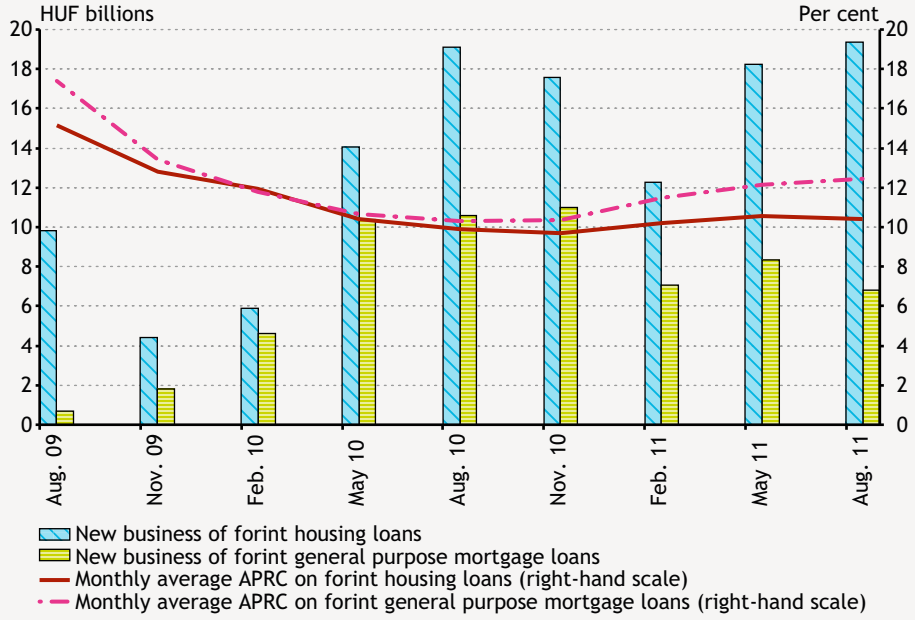
Before 2003, reporting entities reported each payment or disbursement separately for these products, thus the turnover of overnight loan and deposit transactions was several times the volume of other loans, which distorter interest statistics. Since the methodology review in 2003, the MNB observes only the month-end stock of overnight deposits and overdraft loans. Month-end levels are considered to be the value of new business, and the average interest rates of month-end stock are published.

3.3.6 Treatment of confidentiality in interest rate statistics

There is a break in one of the published time series on households or non-financial corporations, i.e., neither business volumes nor interest rates/APR are published, if fewer than three reporting entities have supplied data for the given instrument. The rule of at least three reporting entities ensures that individual data cannot be identified in the statistical releases.

From January 2012, the confidentiality treatment procedure has been extended. As a result, special signs are used to indicate whether none of the reporting entities had data on an instrument or only one or two of them transacted in that instrument. If none of the reporting entities had data, a '–' sign is used, while confidential data from one or two reporting entities are published with an '*' sign. The new methodology for confidentiality treatment has been applied to the time series for forint, euro and Swiss franc consumer loans going back to 2010, while it has been applied from January 2012 in

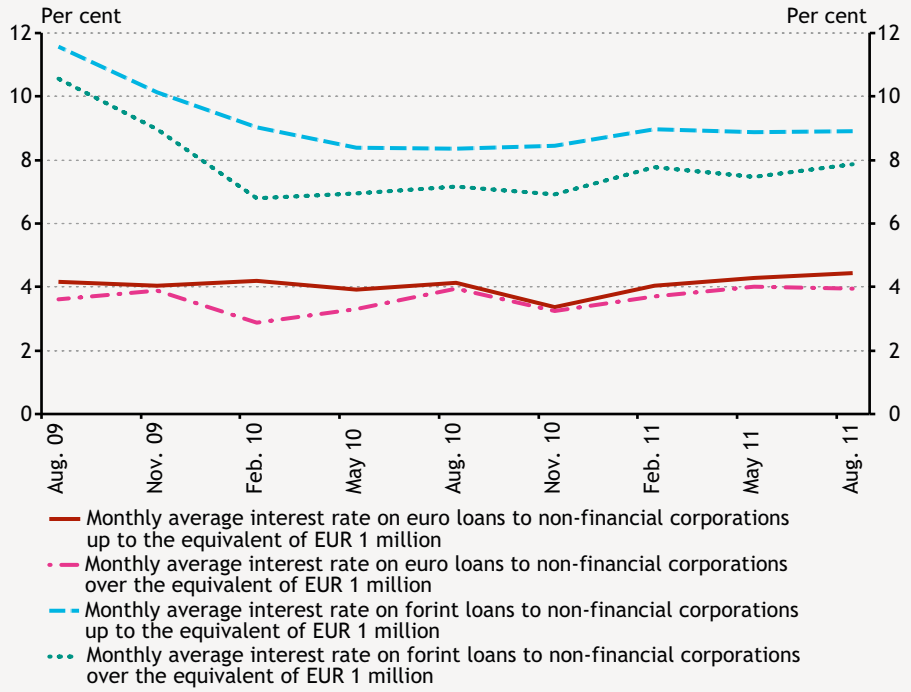
Chart 7
The amount of new business and APRC of forint loans to households



[27] On 14 August 2010 Act XC of 2010 entered into force, prohibiting the registration of mortgages to cover foreign currency loans. The results are reflected in the decline of foreign currency lending since September 2010.

[28] Nevertheless, the value of new foreign currency loans to households is greater than zero. This is explained by the possibility to refinance existing foreign currency loans.

Chart 8
APRC of loans to non-financial corporations



the case of the other time series for interest rate statistics. New partial aggregates in the case of the time series for forint, euro and Swiss franc personal loans, car purchase loans and home equity loans have been published going back to January 2010 (with the exception of five-year rate fixing). This has caused a structural change in the time series published on the Bank's website.

In accordance with the confidentiality treatment methodology applied to data going back to December 2011, when fewer than three reporting entities supplied information, a '–' sign indicated confidentiality issues (with the exception of the time series for consumer loans).

3.3.7 Sources of the data

Data sources for interest rate statistics are the following interest rate statistical reports to be submitted by other monetary financial institutions to the MNB monthly:

• average interest rates on HUF and EUR loans and deposits of non-financial corporations, and

• average interest rates of HUF and EUR consumer and housing loans to households.

At present, data collection is based on a sample: reporting obligations applies to all the banks, branches of foreign credit institutions and specialised credit institutions as well as some of the co-operative credit institutions, as explained in Section 2.2. Interest rate statistics.

3.4 COMPOSITION OF LOANS TO THE HOUSEHOLD SECTOR

3.4.1 Characteristics of the publication, data content

The release 'Composition of loans to the household sector' is published on the website of the Magyar Nemzeti Bank with quarterly frequency.

The source of the data used in the publication is the report 'Composition of loans to the household sector', supplied to the MNB on a quarterly basis by banks, specialised credit institutions and permanent establishments of euro area financial institutions with balance sheet totals in excess of HUF 100 billion.

3.4.2 Structure of the report, content of the data

The publication provides information on the portfolio of loans of the aforementioned reporting entities to households by type of product, rating grade and delinquency. Disbursements and principal outstanding in the quarter are presented for housing and home equity loans by loan-to-value ratio (LTV). The loan-to-value ratio shows the ratio of the loan to the value of the real property serving as collateral (gross loan / value of collateral).

Gross value means the purchase price, historic price or book value unadjusted for provisioning or revaluation or valuation difference.

Net value is the book value adjusted for provisions or valuation difference.

Since 2012 transaction data have also been published: the release contains the data for disbursements, repayments, the sale or write-off of loans by type of product.

3.4.3 Breakdown of the loan portfolio by rating grade

The release presents the various types of loans (housing loans and consumer loans) by rating grade. The table shows both gross and net values. The rating grades are in line with the rating categories required by Government Decree No. 250/2000 (XII. 24.) on the special rules applicable to the reporting and bookkeeping obligations of credit institutions and financial enterprises.

3.4.4 Breakdown of the loan portfolio by overdue payment

The tables presenting the breakdown of the portfolio by overdue payment is based on the rating of exposures by transaction type for the period 2009–2010. This means that if the client has two loans of the same transaction type, both loans will be rated based on the loan with the longest period of delinquency. (For example: the client has two overdraft loans, the one is overdue while the other is not. In this case both types of loans are deemed to be overdue. If, however, a client has a delinquent overdraft loan and a performing housing loan, the housing loan is not rated as delinquent as it belongs to a different product type.) In other words, the exposures of credit institutions to their clients are classified based on the loan longest overdue in each exposure category. The debt longest overdue is the overdue principal or interest that the client has not paid in accordance with the contract, notwithstanding the fact that according to the accounting rules, interest overdue more than 30 days must be put on non-accrual and must not be included among assets.

The basis of rating has been changed: Since 2011 the delinquency categories have been defined based on rating by contract. (As each loan has a separate contract, therefore the report contains only those loans as delinquent that really are overdue.)

The release shows the loan portfolio in gross terms.

3.4.5 Breakdown of the housing and home equity loans disbursed in the quarter by loan-to-value ratio (LTV) and purpose of lending

The publication also contains the breakdown of the disbursements of housing loans and home equity loans in the quarter by loan-to-value ratio, where the value of the property serving as collateral for the loan is the collateral value[29] for the 2009–2010 period, while from 2011 on, the value of the collateral is determined based on the market value. As disbursement data are not comprehensive, the figures are disclosed in percentage form. The publication also contains the breakdown of the disbursements of housing loans by purpose of lending.

3.4.6 Principal outstanding in the quarter for housing and home equity loans by loan-to-value ratio (LTV)

The principal outstanding in the quarter for housing and home equity loans is presented in a breakdown by loan-to-value ratio (LTC) as well. The data are shown in gross terms. As these tables contain only principal outstanding, the 'Total' columns do not reconcile with the 'Total' columns of the tables 'Breakdown of the loan portfolio by delinquency' as the latter also include interest receivable more than 30 days overdue, and the related principal is classified in the performing and special mention categories. Thus interest is not put on non-accrual status, thus they are reported among assets.

3.4.7 Loans to the household sector

Since 2012 transaction data have also been published: the release contains the data for disbursements, repayments, the sale or write-off of loans by type of product. In case of foreign currency items, the transactions and closing levels are disclosed at quarter-end MNB exchange rates, the opening levels at the exchange rate of the previous period. Other stock changes include transactions not detailed elsewhere (e.g. capitalisation etc.).

3.5 CENTRAL BANK INTEREST RATES

The table on central bank interest rates shows the interest rates of the following instruments:

- central bank base rate,
- interest rate on O/N collateralised loan,
- interest rate on O/N deposit,
- yield on the two-week MNB-bill,
- interest rate on the minimum reserves,
- penalty interest rate applied in case of reserve deficit.

The data for central bank base rates are available on the MNB website.[30]

3.6 MONEY AND FOREIGN EXCHANGE MARKETS

3.6.1 Money market figures

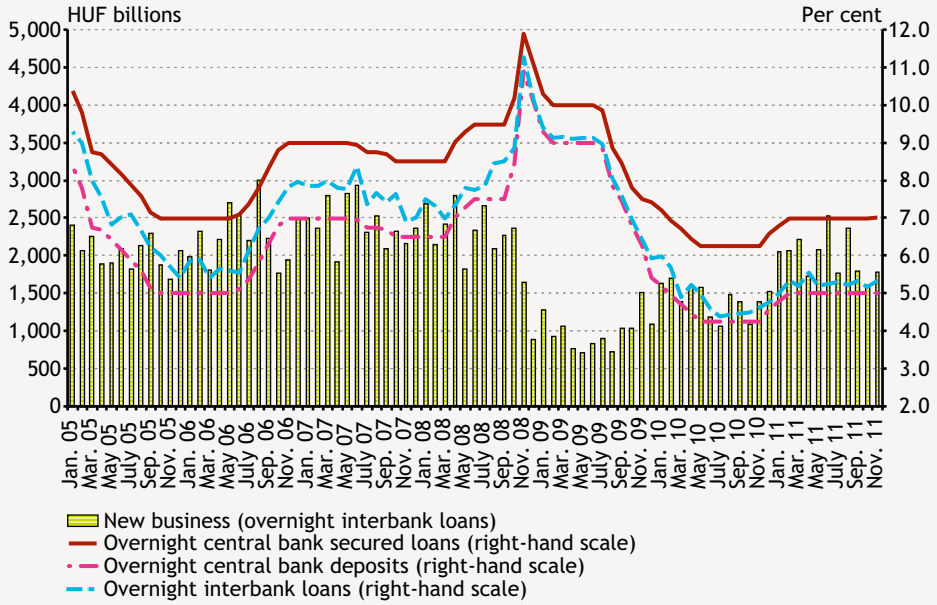
The time series for the monthly average interest rates for money market forint transactions is available on the MNB website from January 2000.

The MNB collects money market interest rate data only from banks and specialised credit institutions. The data do not include the interest rates of loan and deposit transactions of banks with co-operative credit institution or corporations through the treasury.

[29] The collateral value is the estimated value that the bank uses to accept the property as collateral. It is generally determined so that the bank can collect its amount with certainty even if the real property needed to be sold within 3 months. Thus the collateral value is lower than the market value.

[30] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: II. Data related to monetary policy instruments/Key policy rate and interest rates of monetary policy instruments.

Chart 9
O/N central bank and interbank interest rates and turnovers



The MNB also collects information on overnight interbank forint loans and deposits and publishes the data daily through Reuters. Furthermore, in the press release on interest rates for the household and non-financial corporation sectors the MNB presents the interest rates of O/N MNB collateralised loans, deposits and two-week MNB bills as well as the O/N interbank transactions. The time series present the average interest rates of unsecured interbank lending transactions for overnight loans, maturities of 1, 3, 6 and 12 months and as monthly aggregates.[31]

The first table presents the monthly average interest rates of unsecured HUF interbank lending transactions by five maturity categories. The second table shows the monthly turnover in the various maturity categories.

3.6.2 Foreign exchange market data

Since 2005 the MNB has published, on a daily basis, the time series going back to May 2001 on the daily average turnover of **foreign exchange transactions** (spot, FX forward, spot leg of FX swap transactions and FX options) concluded during the month by resident credit institutions and branches of non-resident credit institutions in Hungary, in million forints, by type of transaction, main currency pairs and type of counterparty.

The report presents transactions involving exclusively HUF, USD, EUR, GBP, CHF, JPY separately, while other transactions are shown as aggregate figures. In the breakdown by main counterparty types, the transactions are presented separately depending on whether the reporting credit institution concluded the FX transaction with a resident credit institution, other resident counterparty, non-resident credit institution or other non-resident counterparty. In addition to that classification, there is an 'Other aggregate' category containing transactions in respect of which the MNB has no information on the breakdown by counterparty as they are to be reported as aggregates, being below HUF 5 million. In the years before 2005 a slightly different counterparty breakdown was applied to the data published quarterly: transactions with resident credit institutions; other resident counterparties and non-resident counterparties were shown separately. In line with user requirements, the report does not include stock exchange deals, while the data on resident credit institutions are net of the duplications arising from their transactions with each other. The monthly data published in the

[31] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: XI. Money and capital markets / Monthly average interest rates of unsecured HUF interbank lending transactions.

form of time series by type of transaction and the pre-2005 data, not presented as time series, are also available on the MNB website.[32]

The data come from the daily reporting of resident banks, specialised credit institutions and branches of non-resident credit institution, which include the following information in respect of the previous working day:

- FX stock in the balance sheet, broken down to resident–non-resident,
- on-balance-sheet and off-balance-sheet open FX position data, and
- transaction data (spot, forward, swap and option deals, with main characteristics – aggregated data).

3.7 NET ASSET VALUE OF INVESTMENT FUNDS

The publication on the net asset value of investment funds is compiled monthly from the statistical balance sheets collected by the MNB from investment fund managers, by fund. The main data can be found on the MNB website going back to 1998.[33]

The data contain the figures of both money market and (non-money-market) investment funds, with the net asset value of closed-end and open-end investment funds presented separately:

- on the asset side, the investments of open-end investment funds are detailed at net market value by instrument and resident–non-resident status. The Other assets category in the publication includes cash and overnight deposits, deposits with fixed maturity, investment fund shares, investments in real property as well as the balance of other assets and liabilities.

- on the liability side, the investment fund shares issued by the funds are presented broken down by the sector of owners, with more detailed content for residents and a higher level of aggregation for non-residents. Before 31 December 2009 that information came from the balance sheets submitted by the fund managers. Fund managers are/were not always able to clearly identify the holders of their units, thus those data are for information only. Since January 2010, this information is based on the custodian statistics of securities statistics, which provides a more clear view of the holdings of investment units of each sector.

3.8 STATISTICAL BALANCE SHEET OF INSURANCE COMPANIES

The MNB has been collecting the statistical balance sheet information of insurance companies since 1997 and publishing it with quarterly frequency since 2007. The original purpose of data collection was to obtain the data required for the insurance company module of the quarterly financial account statistics. One of the changes in the context of the review of the publication regime in the second half of 2006 was the decision to publish the statistical balance sheet of insurance companies, in line with the principle that the MNB should publish all relevant data that it collects.

The publication contains the data of resident insurance companies and branches of non-resident insurance companies. The content and valuation rules of the data collection rely primarily on Act C of 2000 on Accounting and Government Decree No. 192/2000. (XI. 24.) on the special rules applicable to the reporting and book-keeping obligations of insurance companies. In respect of the assets covered, the statistical balance sheet departs from the accounting balance sheet in that the assets and liabilities of foreign branches must not be included in the statistical balance sheet. The founding capital made available to the foreign branch is shown under external assets, in the line shares and other equity investments.

The data collected are published by instrument following aggregation: broken down by resident–non-resident categories on the asset side.[34]

[32] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: XI. Money and capital markets / Statistics on Foreign Exchange market transaction.
[33] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: XIII. Securities.
[34] http://english.mnb.hu/Statisztika/data-and-information/mnben_statisztikai_idosorok: X. Monetary and other balance sheet statistics.

4 Relationship with other statistics

The MNB uses the data derived from monetary statistics for the compilation of other statistical reports, and it relies on data from other statistics to break down or adjust balance sheet data.

Every monetary financial institution – the MNB, credit institutions and money market funds – is obliged to submit balance sheet reports to the MNB. The balance sheet contains no information concerning the ownership of the securities issued by the MFIs, therefore data from securities statistics are used for that breakdown in the monetary statistics.

Securities statistics monitor the outstanding amount and price of securities through the reports required by the MNB. The most important data collection on securities is reported by resident custodians (credit institutions, investment enterprises, Hungarian State Treasury), which contains security-by-security data with a breakdown by sector of owners, on those securities that they hold or that are placed in custody by their clients. Securities statistics use such data and information from the securities register, which contains key data on securities, to generate the month-end total outstanding amount of securities issued by residents at nominal value and market value as well as the main components of monthly changes in stock, transactions, revaluations and other changes in volume broken down by the sector of owners.

In the **financial accounts statistics** the stock of financial assets and liabilities of the central bank and of other monetary financial institutions, the transaction data and their net lending/net borrowing (financing requirement) are determined with quarterly frequency. The inputs of the financial accounts statistics are the balance sheets of the central bank and the balance sheet of other MFIs.

With the exception of loans and deposits, both monetary statistics and the financial accounts rely on the fundamental valuation principle of market valuation; for practical reasons, however, this can be applied in monetary statistics only with limitations.

Monetary balance sheets and financial accounts statistics are different in that in the financial accounts other assets and other liabilities may contain only items arising from adjustments due to accrual accounting. In the financial accounts accrued interests (without capitalisation in the case of deposits) are disclosed under interest-bearing instruments rather than under other items. As a result of the different interpretation of other items, the amount of assets and liabilities in the financial accounts is not the same as the corresponding items in monetary balance sheets.

Differences between the two sets of statistics also arise from the delimitation of loan and deposit instruments. In monetary statistics the instrument of deposit is presented only on the liability side, loan instrument on the asset side. In contrast, in financial accounts statistics both instruments can be presented on the asset and liability sides alike.

In respect of the instruments used in the two statistical reports, minor differences arise from the fact that bills of exchange are presented as securities in financial accounts and as loans in monetary statistics.

There are case-by-case differences in the classification of institutions into institutional sectors as well. For example, for the purposes of the financial accounts certain items of the Hungarian Development Bank (Magyar Fejlesztési Bank, MFB) may be part of the general government whereas monetary statistics classify the MFB into the sector of other MFIs in its entirety.

5 Legal framework

The data source of monetary statistical releases is the reporting required by the MNB. The legal framework for statistical data collection, analysis and publication is provided in the Act on the Magyar Nemzeti Bank (MNB Act, 2011) and the Act on Statistics (Statistics Act, 1993).

The Act on the Magyar Nemzeti Bank classifies the collection and publication of statistical information among the basic tasks of the central bank. Pursuant to the Act, in order to fulfil this task 'the MNB operates a central bank information system, for which the organisations and natural persons determined by law shall provide the information – not qualifying as personal data – as required in the decree of the Governor of the MNB. (...) The contents and methodology of the statistical information system operated as part of the central bank information system shall be specified by the MNB in conjunction with the Central Statistical Office, with due consideration of the opinion of the Minister responsible for the state budget (...) and the Supervisory Authority. The MNB shall publish all important information related to the operation of the credit institution system and to the financial situation of the country (...) in a manner which precludes the possibility of identifying information pertaining to the individual parties providing the data.' The MNB must provide 'detailed data (on reporting entities) to the Parliament, the Government and the bodies of central state administration and the HFSA upon request.' [MNB Act, 2011, Section 21 (1)–(4)]

The MNB specifies data reporting requirements for credit institutions in a decree. (MNB decree, 2010). The text of the decree is available on the website of the MNB.[35] The reporting entities for monetary statistics include the MNB itself – its reporting obligation is set out in an internal regulation.

The so-called supervisory balance sheet report collected from credit institutions, which is the basis for monetary balance sheet statistics, has been required and used jointly by the MNB and the Hungarian Financial Supervisory Authority since 1998.

[35] http://english.mnb.hu/Statisztika/data-suppliers/regulations-and-resolutions

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MNB Decree (2000): Government Decree 221/2000 (XII.19.) on special reporting and accounting requirements applicable to the Magyar Nemzeti Bank.

Trading Book Decree (2000): Government Decree 244/2000 (XII. 24.) on the rules of calculating the capital requirement of positions, assumed risks, foreign exchange risk and large exposures registered in the trading book and on the detailed rules of keeping the trading book.

MNB Decree (2011): Decree 14/2011. (X. 13.) of the Governor of the Magyar Nemzeti Bank on the scope of information to be supplied for the central bank information system and on the method and deadline of data supply.

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