Methodological notes to the press release on the aggregated balance sheet of credit institutions

1 **Reclassification of funds increasing the security of financial investments into the central government**

In accordance with the Eurostat’s decision and in consultation with the Hungarian Central Statistical Office, the funds increasing the security of financial investments have been removed from the sectors of financial corporations and non-financial corporations and reclassified into the general government sector in monetary statistics from the end of July 2017 onwards. The sectoral reclassification affected the following institutions: National Deposit Insurance Fund, Investor Protection Fund, Guarantee Fund for Cooperative Credit Institutions, Compensation Fund, Resolution Fund, Hungarian Resolution Asset Management Plc., Resolution Receivable Management Plc., RESIDÉAL Plc.

2 **Changes in data on credit institutions from the release of January 2017 data**

From 2017, resident credit institutions are allowed to use International Financial Reporting Standards in compiling individual financial reports and maintaining accounting records. This has required a revision of the data collection system for credit institutions used to compile central bank statistics and the introduction of reports that could be completed by credit institutions on the basis of both domestic and international accounting standards. From the statistical releases for January 2017 as a reference period, the main source of credit institutions’ balance sheet statistics is the M01 (M11 in respect of annual frequency) monthly balance sheet data report and detailed M02-M05 data reports. These data reports are primarily intended for statistical purposes, and therefore the requirements and recommendations of international accounting standards have more importance in them than in the earlier supervisory balance sheet reports. This in turn has made it possible to clarify information contained in data reports as well.

Instead of the traditional business breakdown used in previous data collections (financial services and investment services), assets and liabilities in the balance sheet are broken down exclusively by types of instrument. As a result, loan receivables and deposit liabilities related to investment services, previously recorded under other assets and other liabilities and were not broken down by instrument, have been re-recorded under loans and deposits, respectively. The increase in the value of loans on the assets side was caused by the fact that assets purchased from other financial institutions should be recorded at gross value in the balance sheet, in the same way as own loans, replacing the previous practice of recording at purchase price. All reporting credit institutions (not only those opting for fair value accounting and those using fair value accounting due to the changeover to IFRS) record their financial derivatives at fair value in the new data reports, which has led to changes in other assets and other liabilities. Following the changeover to IFRS, the valuation of various securities and equity positions, impairment loss and revaluation adjustment, the value of provisions and, in conjunction with these, equity in the balance sheet have also changed at the credit institutions affected.

The new, detailed data reports are based on data derived from analytical records instead of general ledger data. Consequently, there may be a few days’ differences across maturities of certain instruments. As a result, original maturities, defined in years, in the previous sources of data, the supervisory balance sheet and the new data reports may differ slightly. Reporting based on analytical records yields more precise data.

The effect of the above methodological changes are shown among other volume changes in the time series of monetary statistics publication for the reference period of Dec 2016.
3 Treatment of forint conversion and settlement of foreign currency loans in the monetary statistics

A Forint conversion of non-mortgage household loans

Under Act CXLV of 2015 on the settlement of issues related to the conversion of claims arising from household loans, credit institutions are required to convert foreign currency non-mortgage loans to household into forint, as provided for in the Act (hereinafter: forint conversion). The effect of the forint conversion of non-mortgage loans appears first in the November 2015 data.

B Forint conversion and settlement of mortgage loans

Under Act LXXVII of 2014 on the settlement of issues related to the change in the foreign currency denomination of certain household loans and interest rate rules, credit institutions are required to convert foreign currency mortgage loans to households into forints, as provided by the Act (hereinafter: forint conversion).

Under Act XL of 2014 on the rules of financial settlement and certain other issues set out in Act XXXVIII of 2014 on the settlement of certain issues concerning the uniformity decision by the Supreme Court related to loan agreements between financial institutions and households, credit institutions are required to settle with their debtors (hereinafter: settlement), as provided by the Act.

The effect of the forint conversion and settlement of mortgage loans appears first in the February 2015 data.

Changes in volume arising from both forint conversions and settlements are treated as transactions in the monetary statistics.

Calculating the forint value of loans affected by forint conversion in the monetary statistics

A December amendment to Government Decree no 250/2000 (XII. 24.) on special provisions regarding the annual reporting and book-keeping obligation of credit institutions and financial enterprises allows credit institutions to value foreign currency-denominated mortgage loans affected by mandatory forint conversion as well as the related stocks of loans at the exchange rate provided by the Forint Conversion Act at their own discretion.

However, in order to ensure that all stocks of foreign currency loans are presented at uniform exchange rates in their reports to be made to the MNB, credit institutions are required to continue to calculate forint values of foreign currency-denominated loans, including those affected by mandatory forint conversion, at the MNB's official end-of-month mid-rates, in line with past reporting practice and using unchanged methodology.

Furthermore, in order to ensure that the balance sheet totals in credit institutions' statements and their reports to be made to the MNB are identical, part of credit institutions show the difference between the MNB’s official end-of-month exchange rate and the fixed exchange rate among Assets in the row Provisions/Valuation difference. In this case, the net stock of loans affected is recorded at the fixed exchange rate in the balance sheet and the statements detailing it. Some credit institutions show the difference among Prepayments with a negative sign, instead of using the row Provisions/Valuation difference.

In summary, in line with past publication practice, forint values of foreign currency-denominated loans published in the MNB’s publications containing balance sheet items of credit institutions are calculated using unchanged methodology, at the MNB's official end-of-month mid-rates, in order to present outstanding lending to households at uniform exchange rates.
Adjustments to seasonally adjusted loan transactions data due to forint conversion

Due to the fact that forint conversions cannot be related to any seasonal effect, the following method is used to seasonally adjust households’ loan transaction data:

Transaction values are modified with the effect of forint conversion/settlement, then the time series adjusted in this way is seasonally adjusted. Following seasonal adjustment, the time series are ‘modified backward’ with the same amounts, i.e. the effect of forint conversion/settlement is treated as an outlier. By doing so, its effect is ignored during seasonal adjustment, while the time series containing transactions data continue to be adjusted with other seasonal effects.

4 Treatment of the MNB’s Funding for Growth Scheme in the monetary statistics

The MNB launched its Funding for Growth Scheme (FGS) on 1 June 2013. Under the Scheme, the Bank extended refinancing loans to credit institutions at preferential interest rates over the period to end-September 2013, which they used to grant loans to SMEs with a maximised interest margin. The details of the Scheme are available on the Bank’s website at the following link.

Adjustment of seasonally adjusted loan transaction to reflect the effect of the FGS

The transaction values published as part of the publication of monetary statistics also include loans granted to non-financial corporations under Pillar 1 of the FGS in July, August and September 2013.

As these changes cannot be related to any seasonal effect, the following methodology was used in the seasonal adjustment of loans to non-financial corporations:

The amount of forint loan transactions is reduced by the amount of loans granted for other purposes than loan conversion under Pillar 1 of the FGS, while the amount of foreign currency loan transactions is increased by the amount of foreign currency loans converted under the Scheme. The seasonally adjusted values, calculated by adjusting the time series for the effect of the FGS, are re-adjusted by the same amounts. Using this method, the effect of Pillar 1 of the FGS is removed during seasonal adjustment, while the time series containing transactions continue to be adjusted for other seasonal effects.

On 11 September 2013, the Monetary Council decided to continue the Scheme, by launching Pillar 2. Loans granted each month under Pillar 2 of the Scheme are treated as part of normal business, and therefore the time series is not adjusted with such loans in the seasonal adjustment process, in contrast with loans granted under Pillar 1 of the Scheme.

5 Presenting impairment loss and revaluation adjustment data

In order to enable easier comparison and better analysis of data published by European central banks, the MNB has modified its methodology of recording data on provisions set aside against asset side loans and revaluation adjustments in its publications presenting credit institutions’ balance sheet items, in line with the methodology of the European Central Bank. Previously, provisions for impaired loans and revaluation adjustments were recorded as items reducing the stock of other assets in the Bank’s statistical publications. From the press release of 28 February 2014 presenting January 2014 data, provisions for loans and revaluation adjustments will be shown on the liabilities side with a positive (+) sign, together with specific provisions. At the same time, specific provisions will be treated separately from other liabilities.

In the publications, the sum of items transferred from the assets side to the liabilities side will increase balance sheet totals reported by credit institutions in their accounting balance sheets.

The transfer of provisions and revaluation adjustments to the liabilities side and their separate treatment from other liabilities has been taken back to January 2010.
6 Changes in the stocks of loan impairments and specific provisions

In order to enable better analysis of transaction values of credit institutions’ balance sheet items calculated and published by the MNB, from the press release of 28 February 2014 presenting January 2014 data, any change in the stock of provisions made against asset side loans and revaluation adjustments as well as specific provisions – i.e. any change which cannot be related to exchange rate changes or other volume changes – will be shown as revaluation.

The recording of volume changes as revaluation, previously treated as transactions, has been taken back to January 2010.

7 Statistical treatment of the change in the definition of money market funds

The European Central Bank, in cooperation with the European Securities Markets Authority, has changed the definition of money market fund. The MNB has been using this new definition for the statistical classification of mutual funds since 1 January 2012.

With the change in definition, 10 mutual funds are no longer classified as money market funds in a statistical sense from 2012. The main balance sheet items of these funds have been reclassified from the sector of money market funds (C6) to the sector of non-money market funds (D3) at the values contained in the table below:

<table>
<thead>
<tr>
<th>Main balance sheet items of reclassified money market funds, 31 December 2011</th>
<th>HUF billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>178.7</td>
</tr>
<tr>
<td>Cash and deposits</td>
<td>102.9</td>
</tr>
<tr>
<td>Net asset value of mutual fund shares</td>
<td>177.2</td>
</tr>
</tbody>
</table>

8 Treatment of early repayment in the monetary statistics

On 19 September 2011, Parliament passed Act CXXI of 2001 amending certain laws on home protection, which was brought into force on 29 September. Under the amendment, the law defined a range of consumers with foreign currency-denominated loans who could prepay, i.e. to repay in full, their existing debt at a fixed exchange rate which was lower than current market rates.

· Calculating early repayments of foreign currency loans

In the statistics, early repayments of foreign currency loans are recorded as transactions. As with all other publications on monetary statistics, the basis for calculating transactions is the monthly average foreign exchange rate of the MNB, instead of the amount actually paid by households at the early repayment exchange rate defined by the law.

· Calculating monthly data on early repayments and loans granted for early repayment

Data on early repayments and loans granted for early repayment are derived from weekly reports, while aggregated balance sheet data are derived from monthly reports. Given that in most cases data for a calendar month cannot be produced by aggregating weekly data, monthly data produced on the basis of weekly reports are estimated, in order to achieve comparability across data.

Monthly volume of early repayments and loans for early repayment = (opening value for the week containing the last day of the month – estimated closing value for previous month) + (closing value for the week containing the last day of the month – opening value for the week containing the last day of the month)*(number of working days of the week containing the last day falling within the month)/(number of working days of the week containing the last day of the month).
• Correction of seasonally adjusted loan transactions data due to early repayments

As an effect of early repayments, outstanding debt of households in other currencies – taking into account only transactions – have fallen significantly from October, while forint loans for early repayment have increased. However, these changes cannot be related to any seasonal effect.

If the data to be adjusted were not corrected by data on early repayments and loans for early repayment, it would significantly distort the seasonally adjusted transaction values.

Before seasonally adjusting data, negatively signed transactions data on household loans reported in other currencies are increased by the transaction value of early repayments calculated for a given month, and the time series derived in this way is seasonally adjusted. Finally, the amounts in the seasonally adjusted time series are reduced by the total amount of early repayments.

A similar method is followed in the case of loans granted for early repayment. The calculated transaction values in the ‘forint’ column are reduced by the amount of loans for early repayment, and the seasonally adjusted amounts, derived by adjusting the corrected time series, are increased by the transaction value of early repayments.

Overall, the effects of early repayments are eliminated in the case of both time series, while the time series containing the transaction amounts continue to be adjusted for other seasonal effects.

9 Treatment of repo type transactions in the monetary statistics

At the time of releasing 2011 Q2 data, the MNB published revised balance of payments and financial accounts statistics back to January 2008, due to changes in the treatment of securities repo transactions. Consistent with this, in its press release on 28 October 2011 the Monetary Statistics Area will also issue a revision of credit institutions’ aggregated balance sheet data back to 2008 (at the time of releasing data for September 2011). The below detailed repo correction method was applied until the Dec 2016 reference period.

The Hungarian statistical standards require that in the case of delivery repos (excluding special purpose delivery repos) and securities lending transactions, security assets should be reduced or increased (i.e. the sale or purchase of a security should be recorded). The balance sheet compiled in accordance with the Hungarian accounting standards is the basis for the most important monetary statistical reports. Accordingly, data on repo and securities lending transactions have so far been published in accordance with the Hungarian accounting standards.

By contrast, in international statistical methodology, ownership of the securities does not change in economic terms in a repo transaction or a securities lending transaction, and therefore the value of security assets may not change in statistical publications. In addition, the related cash movements must be recorded as credit or deposit claims or liabilities.

The old tables in the press release on the aggregated balance sheet of credit institutions containing September–December 2011 data, both excluding and including the adjustment for repo and securities lending transactions, will also be published.

All data providers obliged to report their balance sheet data are also required to report data on their repo positions. During the adjustment of positions in repo-type transactions, data provided by credit institutions are adjusted by gross purchase price data reported on their own repo-type transactions.

Adjustments according to types of transaction:

• Repo transaction: delivery repo (excluding special delivery repo), Sale and Buy Back
Securities lending transaction: collateralised loan provided against cash or miscellaneous collateral, securities lending provided against other collateral and uncollateralised securities lending

Effect of data adjustments on the positions in various repo-type transactions:

- Data provider transfers securities under a repo transaction:
  - Increase in the securities position
  - Increase in deposits (repo liability)
- Data provider receives securities under a repo transaction:
  - Decrease in the securities position
  - Increase in loans provided
- Data provider transfers securities under a securities lending transaction:
  - Increase in the securities position
  - Decrease in loans provided
- Data provider receives securities under a securities lending transaction:
  - Decrease in the securities position
  - Decrease in borrowing

Securities positions are adjusted in the currency denomination of securities, according to the place of issue, issuing sector and original maturity.

The related stocks of loans/deposits are always adjusted in forints, according to the country and sector of the counterparty as well as the maturity of the transaction.

Transaction and exchange rate effects are calculated after the data adjustment is made.

**Adjustment of liabilities side securities data for repo transactions**

In the time series presenting the aggregated balance sheet of monetary financial institutions (MFIs), published on 28 September 2012, the breakdown of securities holdings on the liabilities side of their balance sheet by resident and non-resident holders is defined in harmony with international accounting standards, by taking into account the holder of securities in economic terms. Accordingly, when a repo transaction in securities issued by MFIs is made in the secondary market, as a result of which the securities are temporarily transferred from the resident holder to a non-resident or from a non-resident holder to a resident, such securities are recorded for their holders in economic terms rather than on the account of the party borrowing the securities under repo.

As from the reference period of Jan 2017, with the introduction of a new data collection system, the repo correction has not been applied any longer. From Jan 2017 both IFRS and non-IFRS credit institutions are required to report repo transactions as loans (according to the IFRS rules).

**10 Introduction of a new data processing system in the monetary statistics releases from 2010**

In September 2010, the Bank’s Statistics area introduced a new processing system to compile monetary statistics. Because the new framework has greater capacity to handle statistical data, it is now possible to directly use individual securities statistics and to execute computing and estimating procedures applied in monetary statistics at the individual level. The methodological developments also rely on extra information made available by collecting monetary statistics from January 2010, in accordance with the new ECB regulation, in addition to the opportunities offered by the new framework.

The multi-dimensional database enables the new system to disaggregate changes in stocks for all instruments separately, at the level of individual data providers.
11 Methodological changes from 2010

From 2010 another methodological change, consistent with the IMF’s handbook on monetary statistics, is that credit institutions’ equity stakes in each other will not be consolidated in the future.

In the consolidated balance sheet of monetary financial institutions (Table 3), the column ‘Shares and other equity issued by residents’ will also include investments within the credit institutions sector. At the same time, the related adjustments will not be shown in the column ‘Excess of inter-MFI liabilities’. This methodological change has been taken back through the entire time series.

The size of this change is equal to the data in the times series for investments within the credit institutions sector, which are included in column No. 20 of ‘Aggregated balance sheet of MFIs (S.122)’ (Table 2.1) detailing shares and other equity issued by monetary financial institutions.

Another mythological change is the revision of the calculation of the central bank’s derivative transactions form the final quarter of 2008. In calculating the forint equivalent of derivative transactions, actual exchange rates were taken into account, instead of average exchange rates applied previously. This was made necessary by the fact that the volatility of the forint exchange rate during the financial crisis diverted actual exchange rates significantly from the average. All this has caused changes in the transaction tables (1.a.4 and 1.a.5) of the statistical balance sheet of the MNB (S.121), in the columns detailing other assets band other liabilities.

12 Other methodological remarks

Percentages and ratios are calculated from data without rounding. The sums of sub-totals may not add to total due to rounding.

According to the original definition, net borrowings and repayments as well as net new deposits and withdrawals (collectively: transactions) are the difference between aggregate borrowings and repayments in the case of loans and between aggregate depositing and withdrawals in the case of deposits, which do not include the effects from exchange rate movements and other changes.

Consequently, these transaction data, in principle, can be defined directly by way of observing transactions conducted by economic agents in the reference period. However, this approach would place excessive burden on data providers; therefore, the Bank has chosen to use the so-called balance sheet method (indirect approach) instead of the above method to compiling financial statistics. This means that, instead of directly observing transactions, the effects of revaluations and other changes are subtracted (eliminated) from changes in stocks (closing stock less opening stock) to arrive at the proxies for net borrowing or net repayment as well as net deposit inflows or net withdrawal. Generally, exchange rate changes are generally the most important of these adjustments; therefore, in the press release the expression ‘exchange rate adjusted’ is used, although all of the other effects (i.e. price changes and other volume changes) are also eliminated, as can be seen in the formula below.
Economic data often exhibit within-year, more or less regular, seasonal, fluctuations, which arise from the dependence of economic activities on the natural environment, calendar differences and variations in the number of days worked. While original data contain the effects of long-term trends, irregular patterns and their periodical occurrence, these regularly occurring effects are eliminated from seasonally adjusted data, and therefore, time series data for adjacent periods are easier to compare. Due to the above, if available, it may be more useful to analyse seasonally adjusted data in the case of a given statistical series, also taking account of the original data. Accordingly, in the press release and the time series published on its website the MNB also presents the most important statistical series, including the monetary aggregates and transactions in loans and deposits after adjusted for seasonal effects. A feature of seasonal adjustment that cannot be eliminated is the lack of automatic additivity, i.e. that the sum of the seasonally adjusted series for the individual components is not equal to the seasonally adjusted series for the total value of components.

The MNB also presents the most important statistical series, i.e. for the monetary aggregates and transactions in loans and deposits, in seasonally adjusted format both in the press release and as part of the statistical series made available on its website, provided that the results are interpretable in an economic context. The press release does not include the seasonally adjusted series for the entire set of credit institutions’ aggregated balance sheet, as the additivity relationships, damaged due to the seasonal adjustment, are of key importance in the balance sheet. It is important to note in order for an accurate interpretation of the seasonally adjusted series in the press release that all statistical series, for example, the totals for forint and foreign currency as well as their totals, as a general rule are also individually seasonally adjusted, i.e. the so-called direct approach is used. Due to the above and as a consequence of using the direct approach (where the components and the aggregated data are seasonally adjusted simultaneously, independently of each other), the sum of the seasonally adjusted values of the individual series is not equal to the seasonally adjusted value of the total.

If we use the indirect approach, we only seasonally adjust the individual components and treat the sum of the seasonally adjusted series as the seasonally adjusted value of the aggregate. An advantage of the indirect approach is that the seasonally adjusted data ‘can be added together’; however, the seasonally adjusted ‘total’ series does not provide any additional information compared with the seasonally adjusted series of the ‘components’.

For example, according to the aggregated balance sheet of credit institutions containing not seasonally adjusted data, the table attached to the end of the press release text shows the following data on foreign exchange borrowing by households in October:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Opening stock</th>
<th>Revaluations and other changes</th>
<th>Transactions</th>
<th>Change in stock</th>
<th>Closing stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households (S.14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FX loans</td>
<td>5148.5</td>
<td>32.3</td>
<td>-8.2</td>
<td>24.1</td>
<td>5172.6</td>
</tr>
</tbody>
</table>

The difference between the opening and closing stocks (5172.6 less 5148.5) is HUF 24.1 billion, that is, the value of households’ FX loans increased. This resulted from two factors: net repayments of HUF 8.2 billion and revaluations and other changes of HUF 32.3 billion. Despite the fact, therefore, that households repaid more FX loans that they borrowed in October, their outstanding borrowing rose, due to an increase caused by revaluations and other changes.
The indirect method is used when the seasonally adju sted ‘total’ time series data are substantially different from the seasonally adjusted series of the components and such difference is not supported by economic developments.

The formula used to calculate real growth rates ($R_t$) presented in the press release only takes into account the effects of transactions and eliminates changes in the price level, apart from revaluations and other changes in stock (see, for example, the chart plotting the growth of the monetary aggregates):

$$R_t = \frac{X_{t-12} + T_{t-11}}{X_{t-12}} \times \frac{X_{t-11} + T_{t-10}}{X_{t-10}} \times \ldots \times \frac{X_{t-1} + T_t}{X_{t-1}} - 1$$

where

-t = serial number of the current period
-X_t = closing stock at time t
-T_t = transaction in the t\textsuperscript{th} time period
-P_t = relative price level in the t\textsuperscript{th} time period (average of 1995=100)

When interpreting the trend shown in the chart plotting the growth of households’ foreign currency loans in the appendix of charts, it should be borne in mind that the real rate of growth of foreign currency loans moderated up to September 2008 mainly in response to strong increases in the stock values in the denominators in the formula for growth rates. This so-called base effect is the result of the fact that foreign currency borrowing was still at a high level compared to the outstanding stock, as is shown in the chart plotting developments in net borrowing in the press release.