

## Methodological notes to the press release

The main aim of the MNB's statistical balance sheet containing average stocks (Table 1 of the press release) is to show credit institutions' (forint) liquidity position in a given month (see, for example, Chart 5 of the chart-pack). For this purpose, the balance sheet records foreign exchange swaps as a combination of deposit and loan transactions (i.e. as assets and liabilities arising from swaps), instead of recording them as derivatives at market prices, consistent with statistical concepts and standards, as is the case with the statistical balance sheet compiled from end-of-month stocks (see Table 2 of the press release). The average balance sheet records the nominal values of liabilities and claims arising from swaps. Consequently, the amounts shown on the assets and liabilities sides are identical. The reason for this is that the average balance sheet is compiled from daily data, and data on swaps are only available at nominal value at such frequency.

The table below shows the differences between the contents of other assets and other liabilities in the balance sheet containing average stocks and in the balance sheet compiled from end-of-month stocks (Tables 1 and 2 of the press release).

<b>Balance sheet containing monthly average data</b>	<b>Balance sheet containing end-of-month data</b>
<p><i>Other assets</i></p> <ul style="list-style-type: none"> <li>• Loans of domestic credit institutions, except and one-week and three-month loans</li> <li>• Loans of other residents</li> <li>• Debt securities issued by residents</li> <li>• Shares and other equity issued by residents</li> <li>• Fixed assets</li> <li>• Swaps entered into under Pillar 2 in the Phase 3 of the FGS</li> <li>• Other</li> </ul>	<p><i>Other assets</i></p> <ul style="list-style-type: none"> <li>• Loans of domestic credit institutions</li> <li>• Loans of other residents</li> <li>• Debt securities issued by residents</li> <li>• Shares and other equity issued by residents</li> <li>• Fixed assets</li> <li>• Other</li> </ul>
<p><i>Other liabilities</i></p> <ul style="list-style-type: none"> <li>• Other domestic deposits</li> <li>• Swaps entered into under Pillar 2 in the Phase 3 of the FGS</li> <li>• Capital and reserves</li> <li>• Other</li> </ul>	<p><i>Other liabilities</i></p> <ul style="list-style-type: none"> <li>• Other domestic deposits</li> <li>• Foreign currency bonds issued by the MNB, held by residents</li> <li>• Capital and reserves</li> <li>• Other</li> </ul>

In addition to the above, there are other relationships and differences between Tables 1 and 2 of the press release:

- On the liabilities side of Table 2, the contents of the item 'Other deposits of other MFI's' and 'Three-month deposits of MFIs' are equal to the combined amount of the items 'Current account balances of other MFIs', 'Overnight deposits of other MFIs', 'Three-month deposits of MFIs' and 'Other deposits of other MFI's'.
- For the period up to December 2010, total holdings of two-week MNB bills are not split by holding sector on the liabilities side of Table 1. On the liabilities side of Table 2, however, only

bills held by residents are shown. Non-resident holdings of MNB bills are included in foreign liabilities.

- From 1 January 2011 up to August 2014, total holdings of two-week MNB bills on the liabilities side of the average balance sheet in Table 1 are split into two – ‘Two-week MNB bills held by residents’ and ‘Two-week MNB bills held by non-residents’. Consistent with this, MNB bill holdings on the liabilities side of Table 2 are shown in a similar breakdown from January 2011 up to August 2014. The total stock of foreign liabilities – including non-resident holdings of two-week MNB bills – is shown in the chart-pack.
- In the average balance sheet (Table 1), liabilities/claims arising from swaps with credit institutions at nominal value are shown in a separate row, while in the balance sheet containing end-of-month stocks (Table 2) such liabilities/claims at market prices are displayed in the ‘Other’ row.
- From January 2010, the liabilities side of Table 1 also present Foreign liabilities, in order to make it comparable with Table 2.
- In Table 1, Foreign liabilities also include resident holdings of foreign currency-denominated bonds issued by the MNB abroad, as the MNB does not have daily information on the breakdown of holders of securities issued abroad. By contrast, Foreign liabilities in Table 2 only include securities actually held by non-residents, and resident holdings are included in Other liabilities.

From February 2011 up to August 2014, the following time series breakdowns are shown backdated to the start of the series, consistent with the press release:

- in addition to total holdings of two-week MNB bills, breakdown into ‘two-week MNB bills held by residents’ and ‘two-week MNB bills held by non-residents’ are also included in the balance sheet time series of average stocks,
- in addition to the total stock of foreign liabilities, two-week MNB bills held by non-residents are shown separately in the time series of end-of-month stocks.

Chart 5 of the chart-pack shows recourse to the various central bank instruments, the central bank policy instrument. The two-week deposit was the MNB’s key policy instrument until 9 January 2007, when it was replaced by the two-week bill between 9 January 2007 and 6 August 2014. Under the self-financing programme announced on 23 April 2014, the MNB re-introduced the two-week deposit as its key policy instrument, which it maintained until 22 September 2015. Since 23 September 2015, the MNB’s new policy instrument has been the three-month MNB deposit. From August 2016, tenders of the three-month deposit instrument were announced at monthly frequency, instead of weekly frequency. From October 2016 until November 2018, the key policy instrument was available at tenders with quantity restrictions. From 19 December 2018, reserve requirements have been the MNB’s key policy instrument.

Differences in stock data are calculated from data before rounding. Consequently, the values derived using this method may be different from those calculated from rounded data.

In order to ensure comparability between data, the time series published by the Bank and the Charts of the chart-pack also show the time series for the monetary base and its components after adjusting for seasonal effects. Trend data are obtained from the seasonally adjusted series by eliminating outliers relating to deterministic effects identified in the seasonal adjustment process and irregular components not explained by the model.

From January 2018, the time series for Other monetary financial institutions’ current account deposits has not been seasonally adjusted. In addition to changes in conditions in the money market and other economic effects, the prevailing level of the reserve ratio also significantly influences developments in

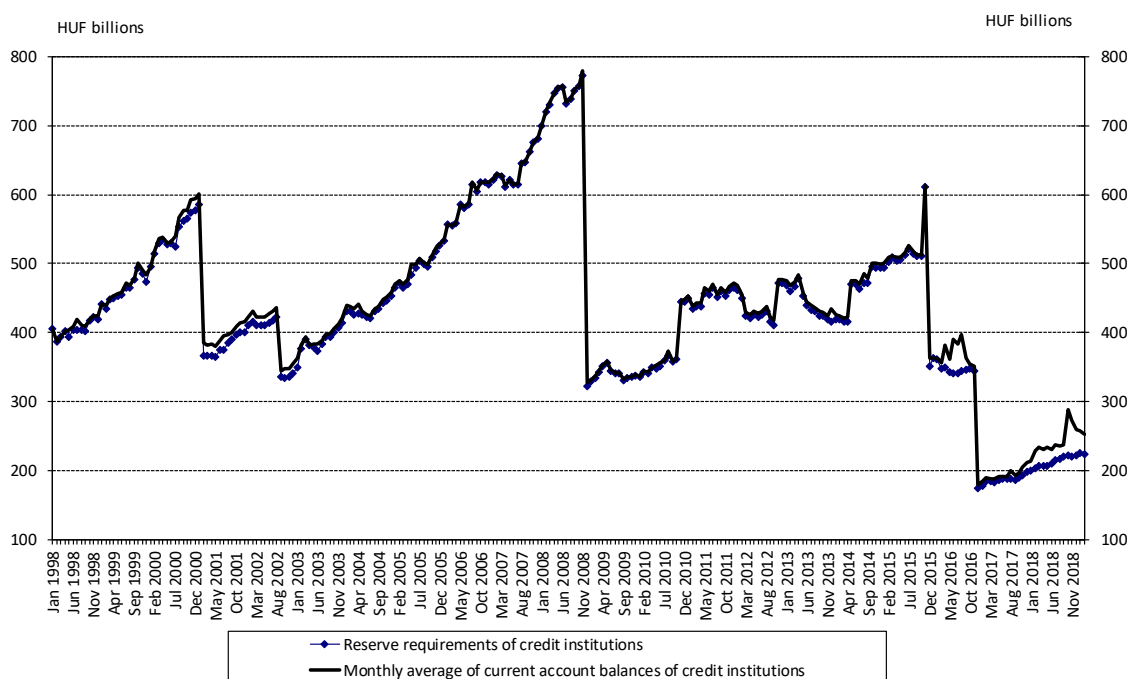
the monetary base and current account balances. The reserve ratio is set by the MNB. It has been reduced by the MNB several times; it currently stands at 2%, down from 12% in 1999 and from 5% over the period from 1 August 2002 to 30 November 2008.

Decree No 13/2010. (IX.6.) of the Magyar Nemzeti Bank has been in effect since 1 October 2010. This allows credit institutions subject to reserve requirements to choose one of the following reserve ratios with a frequency of up to twice a year: 2%-3%-4%-5%. In the absence of such a choice, the lowest ratio of 2% applies to required reserves, as specified in the Decree.

Prior to 1 December 2015, credit institutions had the opportunity to choose, at most semi-annually, different reserve ratios (2%, 3% or 5%). However, MNB Decree 46/2015. (XI.11.), in effect from 1 December 2015, requires credit institutions to hold reserves at a fixed, uniform ratio of 2 per cent, replacing the flexible reserve requirement system.

MNB Decree No 45/2016 (XI. 23.), in effect from 1 December 2016, sets a uniform, fixed minimum reserve ratio of 1 per cent for domestic credit institutions from 1 December 2016.

**Chart 1 Reserve requirements of credit institutions**



In order to better depict the impacts of financial crisis the tendency of monetary base (chart-pack, Fig. 4.) shows a significant increase in October 2008, triggered by an increase in the average stock of currency in circulation and the significant increase in credit institutions' overnight deposits in response to the financial crisis. The trend also presents the liquidity-enhancing effect of the reduction in the reserve ratio in December 2008, i.e. the significant fall in the monetary base in January 2009. In December 2008, the fall in current account balances was offset by an increase in overnight deposits (see Charts 2 and 3 of the chart-pack).

End-of-month data on the MNB's derivative transactions for 2008 Q4 and 2009 in the press release on credit institutions' aggregated balance sheet published at the end of September 2010 have been recalculated, consistent with the methodology applied since January 2010.

In calculating the forint values of derivative transactions, actual exchange rates were used in contrast with average exchange rates used previously. This approach was made necessary by the fact that the

volatility of the exchange rate caused a significant deviation of the actual exchange rate from the average in the wake of the financial crisis. All this has caused a change in the Other assets and Other liabilities columns in the transaction tables (Tables 1.a.4 and 1.a.5) in the statistical balance sheet of the MNB (S.121).

With the entry into force of Act CXXI of 2011, the MNB conducted its first euro sale tender related to final repayments of foreign currency loans by households on 3 October 2011. The aim of the FX swap tender was to provide credit institutions with euro liquidity to cover foreign currency needs related to final repayments of loans. Technically, under these swaps the MNB sold euros to credit institutions, which they were required to resell the Bank as long as they did not certify the amount of foreign currency they actually needed to cover the foreign currency needs for final repayment. Such resales were conducted under overnight swaps rolled over daily, where a credit institution sold foreign currency to the MNB in exchange for forints.

The press releases published for the period October 2011 to March 2012 (i.e. the end of the programme) showed these swaps on a gross basis in a separate line item in the MNB's balance sheet containing average stocks. The average balance sheet recorded the nominal values of liabilities and claims arising from swaps. Consequently, the amounts shown on the assets and liabilities sides were identical.

In addition, other swap contracts of credit institutions to cover their foreign currency liquidity needs (overnight, one-week and three-month EUR/HUF swaps), under which credit institutions could obtain foreign currency from the MNB in exchange for forints, continued to be recorded on a gross basis, consistent with past practice.

As the two types of swap contracts were in opposite directions, the MNB had a forint asset and a foreign currency liability in the case of FX swaps related to final repayments; and a foreign currency asset and a forint liability in the case of overnight, one-week and three-month FX swaps. Therefore, the two types of swap transactions were shown in two separate lines in the MNB's balance sheet containing average stocks (see Table 1 of the press release and Chart 5 of the chart-pack).

A new table was introduced in the press releases published for the period from 2011 November to March 2012, which contained the amounts of accepted bids and the amounts allocated under the Bank's euro sale tenders related to early repayments of households' foreign currency mortgage borrowings. The monthly data showed only the amounts of accepted bids and the amounts allocated during a given month, while the totals showed the cumulative amounts since the inception of the programme. The forint amounts pertaining to bids accepted under euro sale tenders were converted into forint at the EUR/HUF exchange rate offered in each individual bid. The forint equivalent of the amounts of euros allocated were calculated chronologically, at the exchange rate used in individual tenders.

The Magyar Nemzeti Bank introduced a tender for two-year collateralised loans for credit institutions on 3 April 2012. The aim of the tender was to improve domestic credit institutions' liquidity position. The monthly average amount of bids accepted at the tender was made available starting from the press release on the Bank's statistical balance sheet for April 2012 (see Table 1 of the press release). With the launch of the Funding for Growth Scheme announced in April 2013, the Bank's two-year collateralised loan tender, conducted at an interest rate linked to the central bank base rate, was suspended.

In the tables containing balance sheet data in the press release presenting the statistical balance sheet of the MNB, holdings of bills issued by the MNB and shown on the liabilities side of its balance sheet were broken down by resident and non-resident holders on the basis of securities account holders. Accordingly, when other financial institutions entered into repo transactions in the secondary market whereby MNB bills were temporarily transferred by a resident holder to a non-resident or by a non-

resident to a resident, such securities were recorded on the securities account of the party borrowing the securities under repo, rather than for their economic owner.

Consistent with this, holdings of MNB bills were also broken down by residents and non-residents by taking into account the holders of securities accounts in the internet time series in Tables 1.a.1, 1.a.2, 1.a.3, 1.a.4, and 1.a.5.

The internet time series presenting the final statistical balance sheet of the MNB for August 2012, published on 28 September 2012, were expanded with new columns presenting the breakdown of securities holdings by economic owners, excluding the effects of repo transactions. From then on these new columns were used as follows:

The new columns could be found in Table 1.a.2. presenting stock data and in Table 1.a.4. presenting transaction data, in the 'Memorandum items' sections, and were updated at the end of each month, at the time the press release on credit institutions aggregated balance sheet was published. The breakdown of holdings of MNB bills by holding sector, excluding the effects of repo transactions, was backdated in the time series published on 28 September 2012 in the 'Memorandum items' section of the table, the effect of which appeared first in 2011 in the breakdown of MNB bill holdings by residents and non-residents, and its effect could be quantified until August 2014, when the bill as the MNB's key policy instrument was discontinued.

In the period up to February 2013, data on debt securities held as part of foreign exchange reserves among external assets on the assets side of the MNB's balance sheet were valued at 'bid' prices (as quoted by market makers). From March 2013, i.e. from the press release of 12 April 2013, these stocks will be valued at 'mid' prices (calculated as the average of bid and offer prices quoted by market makers) in the press release presenting the preliminary statistical balance sheet of the MNB as well as the related monetary statistics on the Bank's website. The impact of the change in the valuation on changes in stocks has been recorded as a price change in the March 2013 data under 'Revaluations and other changes' in Table 2 of the press release.

Under Phase 1 of Pillar 3 of the Funding for Growth Scheme (FGS) launched on 4 April 2013, the Magyar Nemzeti Bank introduced a new FX swap tender providing euro liquidity on 3 June 2013. In the FGS swaps entered into with counterparties, the MNB acquired an asset in foreign currency and incurred a liability in forint, which have the same direction as the Bank's other overnight, one-week, two-week and three-month FX swap transactions. FGS swap transactions are shown separately in the MNB's statistical balance sheet containing average stocks in Table 1 of the press release and in Chart 5 of the chart-pack. On 1 July 2014, the MNB terminated its FGS swaps; however, swaps entered into earlier but not yet closed were closed out only later.

Beginning with the press release on the preliminary statistical balance sheet of the MNB for August 2013, the data include preliminary estimates for realised and unrealised exchange rate gains/losses arising from exchange rate changes in the reference month on the asset and liability sides of the MNB's balance sheet. These estimates are included in the item of 'capital and reserves'. Previously, exchange rate gains/losses in the reference month were included only in the final data published at the end of the month. The methodological change has resulted in a more precise preliminary estimate of the final data. The data are included in the Internet time series accompanying the MNB's statistical balance sheet.

Beginning with the press release on the preliminary statistical balance sheet of the MNB for January 2014, MNB has introduced a methodological change. Consistent with the accounting balance sheet of the MNB, the balance sheet item of equalisation reserves is recorded under 'capital and reserves' in the statistical balance sheet. The stock of equalisation reserves is also shown separately in the Internet time series. This methodological change has been backdated to 2003 in the time series, which affects changes in the items of 'capital and reserves' and 'other liabilities' in Table 1.a.2 of the time series. A methodological change has also been introduced in the case of transaction data, where 'capital and

reserves' and 'other liabilities' transactions are aggregated in Table 1.a.4 of the time series, which has been backdated to 2005.

It is important to note, however, that equity (and, within that, balance sheet profit/loss) in the statistical balance sheet still does not equal to equity in the accounting balance sheet. The difference arises from the fact that while financial derivatives are recorded at market value in the statistical balance sheet, in the accounting balance sheet they are recorded at a value required by Government Decree 221/2000 on the special reporting and accounting requirements applicable to the Magyar Nemzeti Bank.

From 19 December 2018, reserve requirements have been the MNB's key policy instrument. From 23 September 2015, the three-month MNB deposit has been the MNB's new policy instrument, replacing the two-week central bank deposit. The two-week deposit facility was available for credit institutions until April 2016; however, from 23 September the facility was announced for counterparties with a quantity restriction, at variable-rate auctions. The two-week deposit was the MNB's policy instrument between 6 August 2014 and 22 September 2015 and the period before 9 January 2014. Between 9 January 2007 and 6 August 2014, the two-week bill served as the MNB's key policy instrument. The MNB's counterparties for the two-week deposit and the three-month deposit are domestic credit institutions subject to reserve requirements with direct membership in VIBER (real time gross settlement system) or BKR (interbank clearing system).

Beginning with the press release on the preliminary statistical balance sheet of the MNB for August 2014, the structure of the MNB's statistical balance sheet has changed, reflecting the effects of the change in the key policy instrument.

In Chart 1 of the press release, 'Two-week deposits of credit institutions' has been added to the liabilities side of the average balance sheet, and, in Chart 1 and the internet time series at the end-of-month stocks of MNB statistical balance sheet, are shown on the liabilities side in a breakdown into 'Deposits of credit institutions', 'Two-week deposits of credit institutions' and 'Other deposits of credit institutions'.

Chart 5 of the chart-pack included the average stocks of both two-week MNB bills and two-week deposits, the MNB's new policy instrument, up to August 2014.

On 13 October 2014 and then on 10 November 2014, the MNB introduced two new tenders each for euro sales combined with a spot transaction, in order to cover banks' hedging needs arising from the settlement of household foreign currency loans and conversions of foreign currency loans into forints, respectively. In both cases, the MNB offered two types of facility to counterparties: a one-week rollover FX swap combined with a spot transaction conditional on a reduction in short-term external debt and an unconditional longer-term FX swap combined with a spot transaction. The main aim of the instruments was to provide foreign currency cover to credit institutions for settlements between banks and their customers and for conversions of foreign currency loans into forints. The euro sale tenders were announced for credit institutions weekly until 1 December 2014. The MNB held euro sale tenders on 10 and 11 November as well as on 22 December and 23 January.

In addition to the euro sale tenders, the MNB held a spot Swiss franc sale tender, combined with an FX swap facility, related to the forint conversion of household non-mortgage foreign currency and foreign currency-denominated loans for the first time on 24 August 2015. Credit institutions could use the foreign currency allocated at the tender to enter into one-week rollover FX swaps with the MNB no later than the 52th week following the first tender.

The average stocks of euro and Swiss franc swap transactions entered into in relation to the settlement of foreign currency loans and their conversion into forints under the new tenders were contained in Table 1 and Chart 5 of the chart-pack.

The FX swap and CIRS transactions entered into in relation to the settlement of foreign currency loans and their conversion into forints were in the opposite direction to other swaps providing foreign currency liquidity to banks (overnight, one-week, two-week and three-month EUR/HUF swaps). Similarly to the case of swaps related to final repayments of foreign currency loans, the MNB had a forint asset and a foreign currency liability vis-à-vis credit institutions under the new swaps.

From October 2014, the swap transactions were recorded on a separate line and on a gross basis in the MNB's average balance sheet in the press release until completion of the programme. The average balance sheet recorded the nominal values of liabilities and claims arising from swaps. Consequently, the amounts shown on the assets and liabilities sides were identical.

From publication of the press release presenting the MNB's preliminary statistical balance sheet for September 2015, the structure of the MNB's statistical balance sheet was changed to reflect the introduction of the new policy instrument.

In Table 1 of the press release, the liabilities side of the balance sheet containing average stocks was extended with 'Three-month deposits of MFIs' and, in Table 2, the end-of-month stocks on the liabilities side of the MNB's statistical balance sheet were presented in a breakdown into 'Deposits of MFIs', 'Two-week deposits of MFIs', 'Three-month deposits of MFIs' and 'Other deposits of MFIs'.

Chart 5 of the chart-pack for September 2015 included the average stock of the three-month deposits, the MNB's new policy instrument.

On 4 October 2016, the MNB announced that it would hold EUR/HUF FX-swap tenders providing forint liquidity on an ad hoc basis until further notice. Under the facility, credit institutions are able to swap euros for forint with the MNB entering into transactions with maturities of one week, one month or three months. A detailed notice on the EUR/HUF FX-swap tender is available on the MNB's website at the following link: <https://www.mnb.hu/letoltes/t-c-forint-liquidity-providing-swap-en.pdf>

Table 1 of the press release and Chart 5 of the chart pack already include the October 2016 average outstanding stock of FX swaps entered into under the Bank's new fine-tuning operation (without maturity breakdown).

#### **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., RESIDEAL Plc..

#### **JDemetra+ for seasonal adjustments**

Beginning with the release of January 2017 data, the MNB has migrated uniformly from the tool Demetra to the JDemetra+ software in producing seasonally adjusted data.