



Experiences of the 3-month deposit
limitations and key considerations
for determining the cap
for the second quarter of 2017





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Over the past six months, the limitations of the 3-month deposit achieved their objective. As a result of banks' limited access to the main policy instrument, their holdings of the three-month deposit drops from HUF 1,700 billion at the end of September 2016 at the end of March, while the bulk of the banking sector's surplus liquidity shifted to O/N deposits. The downward pressure on yields of liquidity crowded out was perceivable in all relevant markets: following the announcement of the transformation of monetary policy instruments in July 2016, short-term interbank and government bond market yields declined by 70–80 basis points by March 2017. Supplemented by the use of the fine-tuning swap instrument designed to adjust unexpected movements in liquidity path, the cap system eased monetary conditions, with the key policy rate remaining unchanged.

		11.07.2016	24.03.2017	Change compared to 11.07.2016.
Base rate		0.90%	0.90%	0 bp
BUBOR	1-month	1.00%	0.14%	-86 bp
	3-month	1.02%	0.21%	-81 bp
	6-month	0.96%	0.30%	-66 bp
Government bond yields	3-month	0.80%	0.07%	-73 bp
	12-month	0.98%	0.13%	-85 bp
	3-year	1.63%	1.44%	-19 bp

Source: Debt Management Agency, MNB

The MNB sets a HUF 500 billion cap for Q2 2017, which is expected to support the maintenance of the current loose monetary conditions prevailing in recent months. Reducing the cap from HUF 750 billion to HUF 500 billion implies that the amount of liquidity crowded out of the three-month deposit instrument will be maintained at the same level because autonomous liquidity factors will generate a decline in the banking sector's total available liquidity – compared to the previous quarter – in the second quarter. The decline in total liquidity will mainly reflect the forint issuance of the ÁKK in excess of maturing debt, the expected increase in the stock of cash in circulation and the maturities of FX swaps related to the forint conversion of households FX loans. Consequently, with a downward sloping liquidity path, the current loose monetary policy conditions can be maintained by a reduction in the cap with higher degree to HUF 500 billion.

1. Framework for the calculation of previous quantitative limits

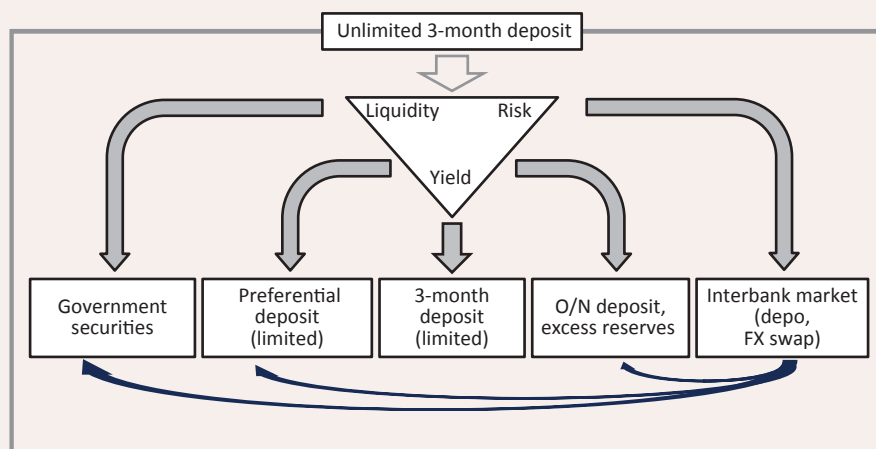
Following its decision on July 2016, the MNB restricts commercial banks' access to the three-month deposit instrument in order to facilitate the intended easing in monetary conditions using unconventional instruments through a change in the banking sector's liquidity structure. The restriction is carried out in two steps: from August 2016, tenders for the instrument are announced once a month instead of the previous weekly frequency (frequency reduction) and, from October 2016, banks' access to the three-month deposit instrument is limited (quantitative limit). Below is a description of the key considerations for defining the previous and current (2017 Q2) quantitative limits.

1.1. IMPACT MECHANISM OF THE QUANTITATIVE LIMIT

The essence of the quantitative limit's impact mechanism is a gradual reduction in liquidity accepted in the three-month deposit instrument, on the one hand, and the yield-reducing effect exerted by excess liquidity appearing in money markets, on the other. The purpose of the quantitative limit is to achieve the targeted reduction in market yields without a change in the key policy rate. The quantitative limit is designed to shift the structure of surplus liquidity and ultimately, to lower the stock of the MNB's three-month deposit instrument and raise holdings of the overnight deposit. Banks may also choose to place the liquidity crowded out of the three-month deposit in a preferential deposit linked to the central bank base rate, which is also a limited sterilisation instrument (with banks' access determined in function of their lending commitments). In addition, any liquidity unabsorbed by instruments yielding the base rate may "find its place" in the interbank and government securities market where the appearance of excess liquidity may generate a downward shift in yields. Also in consideration of banks' usage of the preferential deposit and the placement of liquidity in the interbank and government securities market, at the level of the banking sector the liquidity driven out of the three-month deposit should ultimately flow into overnight deposit instrument. It should be noted that, combined with rising net issuance, the sector-wide increase in demand for government securities *ceteris paribus* absorbs liquidity, in which case the crowding-out effect will not be reflected in systemic O/N deposit placements. At the same time, with constant net issuance the heightened demand for government bonds on an individual bank basis *ceteris paribus* does not affect system-level liquidity.

The yield-reducing effect materialises through banks' yield/risk/liquidity based decisions. Limited access to the three-month deposit restricts the amount of liquidity that can be placed in deposits bearing the central bank base rate, because the full allotment of the three-month deposit is eliminated besides the limited preferential deposit that is conditional upon lending commitments. At the same time, any other relatively short-term assets available to banks for the absorption of liquidity offer relatively low yields in line with their low market risk, and any excess supply in these markets will have a yield-reducing effect.

Chart 1
Stylised impact mechanism of the cap on the three-month deposit instrument



1.2. THEORETICAL FRAMEWORK FOR DEFINING THE QUANTITATIVE LIMIT

The concept of imposing an upper limit on the volume of the 3-month deposit is based on the expected path of the banking sector's liquidity. The liquidity of the Hungarian banking sector is essentially determined by budgetary processes, banknotes in circulation and the liquidity adjustment measures and liquidity management instruments of the MNB. From a different approach, banking sector liquidity will change if any other item of the central bank balance sheet changes. Main factors with a potential impact on liquidity:

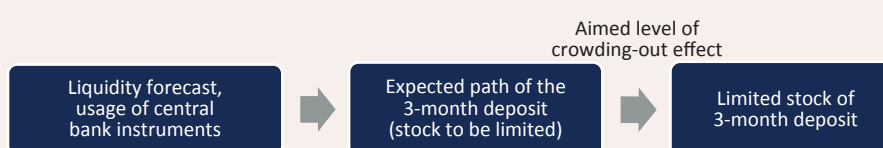
- Payments into the central budget (an increase in the Single Treasury Account [STA] balance) lower, while government expenditures (a decline in the STA balance) raise banking sector liquidity. The financing processes of the budget also influence the level of liquidity: forint-denominated government bond issues (an increase in STA) absorb, while maturing bonds (a decline in STA) expand liquidity.
- An increase/decrease in banknotes in circulation lowers/raises the level of banking sector liquidity.
- In addition, the MNB's liquidity boosting measures and -absorbing instruments exert a considerable impact on forint liquidity, as evidenced by the MNB's recently adopted forint liquidity providing swap instruments discussed below or its Funding for Growth Scheme, which also boosted banking sector liquidity.
- It is important to stress that budgetary items cause considerable volatility in the monthly time profile of liquidity: the payment of public sector wages, VAT refunds and social transfers at the beginning of the month raise the level of liquidity, while VAT and other tax payments typically due in the second half of the month drain banking sector liquidity.

Chart 2
Main central bank balance sheet items

Schematic central bank balance sheet	
Assets	Liabilities
Foreign exchange reserves	Cash in circulation
	Government accounts
	3-month deposit, preferential deposit
Outstanding FGS loans	Minimum reserves
Other net assets	O/N deposit

The expected path of three-month deposits and the intended crowding out jointly determine the value of the quantitative limit. The expected path of the main policy instrument is a hypothetical volume that banks' would be willing to place in three-month deposits without the existence of the quantitative limit. By imposing the quantitative limit, the MNB can "crowd out" a portion of this volume. In practice – and provided that the liquidity forecast materialises – crowding out means that the crowded-out portion of liquidity will flow into the MNB's O/N deposits. In determining the limit, consideration should also be given to the utilisation of instruments other than the overnight (O/N) central bank deposit. For example, strong accumulation of the preferential deposit instrument may mitigate the crowding-out effect, i.e. liquidity flowing into overnight deposits may be lower.

Chart 3
Flowchart of the cap setting



1.3. ASPECTS CONSIDERED UPON THE DERIVATION OF THE PREVIOUS QUANTITATIVE LIMITS

The Monetary Council set the quantitative limit of the end of 2016 at HUF 900 billion, with that, the liquidity crowded out of the 3-month deposit can be at least HUF 200 billion. In September 2016 – upon the parameterisation of the first quantitative limit – the stock of the banking sector's sterilisation instruments (the stock of three-month deposits, preferential deposits and overnight deposits) exceeded HUF 1,700 billion. Based on the main liquidity factors of the banking sector, a HUF 200–300 billion decline in the stock of sterilisation instruments was expected (to HUF 1,400–1,500 billion) by the end of the year. With regard to the average monthly value of the sterilisation instruments:

- the expected rise in cash in circulation and maturing FX swaps related to the forint conversion pointed to a decline in banking sector liquidity,
- while the further rise in the outstanding FGS loans suggested a moderate increase in liquidity;
- budgetary processes were not expected, overall, to exert a considerable liquidity effect (other than the temporary significant liquidity boosting effects typical at the end of the year).

Given the expected increase in preferential deposits, the MNB needed to impose a HUF 900 billion quantitative limit for the end of the year, in order to achieve a crowding-out effect of at least HUF 200 billion.

With regard to Q1 2017, a decision was made to reduce the quantitative limit to HUF 750 billion, which was consistent with the MNB's intention to ease monetary conditions slightly further. In December 2016 the monthly average of the banking sector's sterilisation stock amounted to HUF 1500 billion. Upon the definition of the next limit (in December 2016), a more or less stable liquidity path could be prognosticated compared to Q4 2016:

- cash in circulation typically do not increase significantly in the first months of the year;
- the next swap maturity related to the forint conversion was only due in mid-March;
- and regarding the STA, the MNB projected liquidity absorbing effects for the beginning of the year (front-loaded forint issuance) and liquidity expansion (concentrated government bond maturities) from the second half of the quarter.

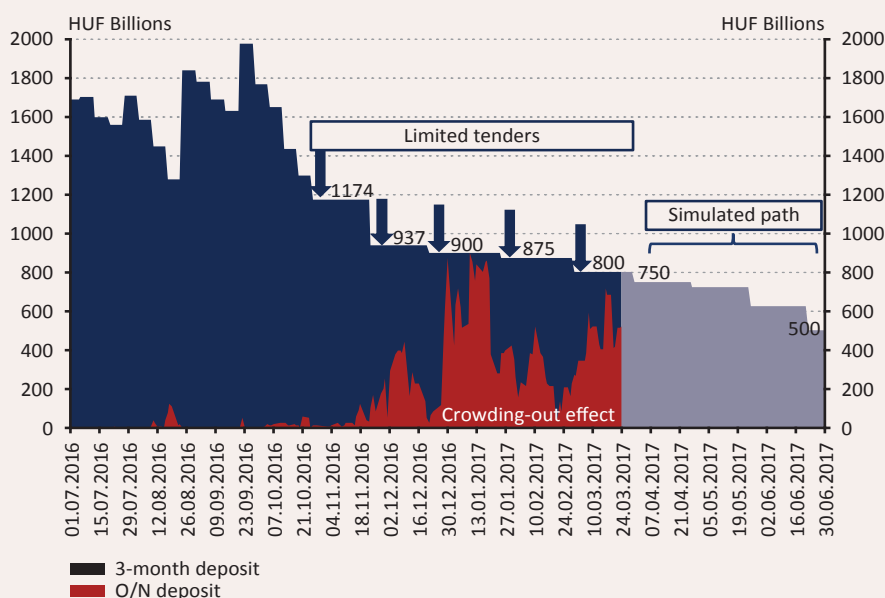
For a moderate further easing of monetary conditions, additional crowding-out was required compared to the previous quarter, which, based on the impact mechanism of the quantitative limit, would ensure a further drop in short-term yields. Accordingly, for an expected liquidity level similar to that achieved in Q4 2016, a further reduction in the limit was decided.

2. Achievements of the quantitative limitations so far

By the end of 2016, banks' holdings of three-month deposits gradually fell to HUF 900 billion and by the end of 2017 Q1 they declined further to HUF 750 billion. In the two months preceding the first limited tender, banks participated in the – as yet unlimited – three-month deposit tenders with remarkably strong demand. The stock of deposits started to decline after the launch of the cap system in October 2016. At its tenders in October, November and December 2016, the MNB accepted bids in an amount of HUF 100, 400 and 400 billion respectively, while the accepted volume of the January and February 2017 auctions was HUF 75 and 325 billion, respectively. Besides the gradual decline in three-month deposit holdings, the allocations at each tender also needed to guarantee the intended crowding-out effect; therefore, the volumes accepted at the tenders were determined by the known maturities of three-month deposits and by the expected liquidity path.

The quantity effect of the restriction on the 3-month deposit began to be reflected in banks' O/N deposit placements from November 2016. In October, the liquidity driven out of the 3-month deposit flew primarily into preferential deposits. Owing to their lending commitments, banks have limited recourse to the preferential deposit; consequently, by the second half of November, the option to place liquidity in preferential deposits ran out. In parallel, from the end of November the stock of new O/N deposits edged up gradually and exceeded HUF 400 billion in the first half of December, reflecting the substantial sector-wide increase in excess liquidity (wage outflows and VAT refunds at the beginning of the month, the reduction in the required reserve ratio in December). As a result, central bank loans adjusted with overnight deposits – a reliable measure of the banking sector's surplus liquidity – started to be dominated by overnight deposits. At the end of 2016 and at the beginning of 2017, the volume of O/N deposits grew temporarily to HUF 800–900 billion, which partly reflected the seasonality of budgetary payments that – although typical at the end of any year – were even stronger than usual at end-2016. Excluding significant intra-month fluctuations, by December 2016 monthly average O/N deposit placements rose above HUF 200 billion, followed by an additional even stronger crowding-out effect in the January–February 2017 period, which was indicated by the volume of O/N deposits rising to HUF 430 billion on average.

Chart 4
Stock of the 3-month deposit and the O/N deposit

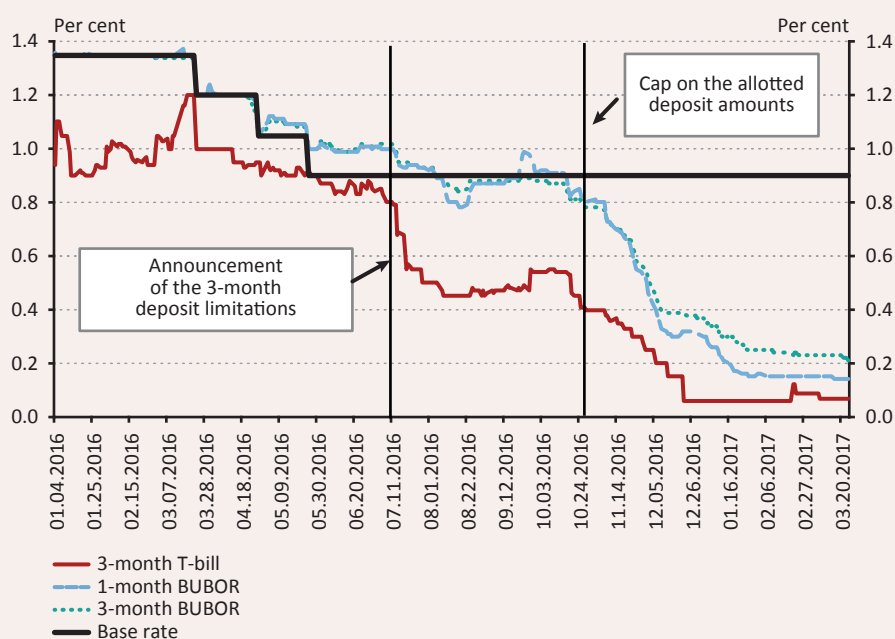


Source: MNB

The announcement of the modification of the 3-month deposit resulted a sharp fall in yields in all relevant markets. After the July announcement of the modification of the three-month deposit, interbank yields – which are of key importance for the pricing of bank loans – fell from levels above the base rate to below the central bank base rate within few weeks. Although interbank yields bounced back temporarily at the end of September, this was followed by yet another steep decline: in the second half of December, one and three-month interbank rates dropped below 0.4 per cent. Rates continued to fall in early 2017, generating a 70–80 basis points overall decline compared to the levels recorded before the implementation of the quantitative limit. At the end of March, the one-month and three-month BUBOR levelled off at 0.14 and 0.22 per cent, respectively. Short-term government securities market yields showed a similar trend: the yields on discount Treasury bills descended to the vicinity of 0.4 per cent shortly after the announcement of the quantitative limit, and then stabilised below 0.1 per cent after yet another sharp fall at the end of October.

The decline in interbank yields – key determinants of loans and money market products – had begun even before liquidity actually started to flow into the overnight central bank deposit, which can be explained by market participants' expectations. The MNB held its first limited tender at the end of October, but it was only from the end of November that the stock of new O/N deposits began to increase considerably. Consistent with this, overnight interbank yields started to decline to around of the lower bound of the interest rate corridor around the same time. Longer, one to three-month yields, however, had started to depart persistently from the key policy rate earlier, from October 2016. The faster response may be due to the fact that market participants had already expected the accumulation of overnight deposit holdings, and because of these expectations, the drop in one to three-month yields began somewhat earlier.

Chart 5
Short-term money market yields



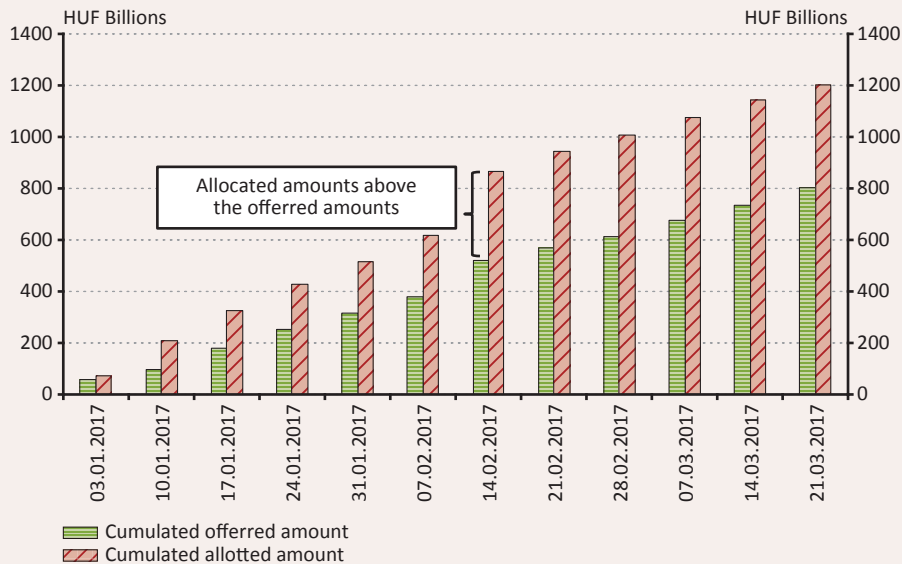
Source: Debt Management Agency, MNB

The persistent and considerable shift in the liquidity path prompted by budgetary processes necessitated the use of the fine-tuning swap instrument as soon as the quantitative limit was introduced. Actual data received at the end of September and in early October 2016 suggested that the liquidity path projected for the whole year was lower than expected. This was mainly due to the fairly low budgetary deficit. Therefore, in order to offset the liquidity absorbing effect of the central government budget, the MNB needed to inject surplus liquidity into the banking system through the use of its fine-tuning swap instrument, which had been introduced earlier specifically for this purpose. In Q4 2016, the MNB held a total of six swap tenders, which enabled the Bank to adjust the previously unexpected, persistent shift in the liquidity path to its intended

quantitative target, i.e. to achieve the HUF 900 billion 3-month deposit volume and the desired crowding-out effect at the same time. Uncertainty surrounding the effect of budgetary processes on liquidity was clearly reflected in the events of Q4 2016: as early as the first half of the quarter, the liquidity shift from the expected path was of such magnitude that the MNB conducted fine-tuning swap tenders even before the first limited deposit tender took place.

The MNB needed to apply its swap instrument in 2017 as well. In the first months of 2017 the volume of retail securities' issues significantly exceeding the level of the offered volume of the Government Debt Management Agency (ÁKK) were fairly surprising compared to what had been previously expected, which, owing to the boosting effect of the extra revenues on the Treasury accounts, also pushed the liquidity path lower, that is to a lower level. The regular use of the MNB's swap instrument can be primarily attributed to greater retail government bond issues than the announced quantities reflecting the planned financing.

Chart 6
Allocated amounts of the retail half-year and 1-year interest bearing treasury bill auctions
(cumulated amounts from the beginning of 2017)



Source: Debt Management Agency

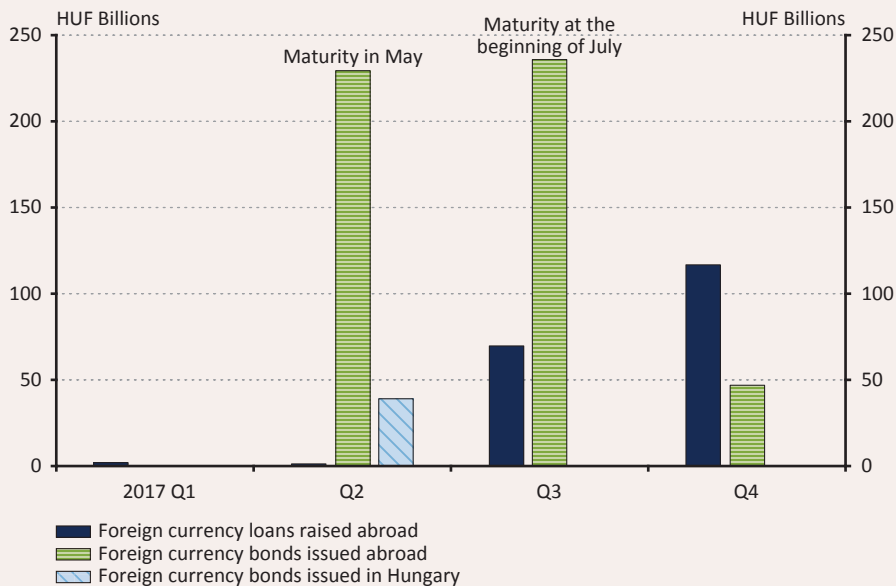
3. Considerations for determining the limit for the end of 2017 Q2

Autonomous liquidity factors predict a sizable decline in banking sector liquidity in Q2 2017. All major factors point to a drop in banking sector liquidity, and according to the MNB’s baseline forecast, the effect of autonomous factors may amount to hundreds of billions of forints. The decline in banking sector liquidity is driven by the following factors:

- the continuing increase in cash in circulation;
- the gradual reduction in the outstanding FGS stock;
- the next swap maturity related to the forint conversion in June;
- the net issuance of forint bonds and retail securities exceeding budgetary deficit.

The planned issuance of forint government bonds will exceed maturities by HUF 260 billion which will significantly contribute to the contraction of liquidity. This will be partly offset by the increase in the cash-flow deficit from the budget side in the second quarter, moreover retail issues exceeding maturities may also point to the contraction in banking sector liquidity, which characterised all quarters of the previous year. The aim of surplus forint issuance is to refinance foreign currency maturities beyond foreign currency issues, a part of which is typically due in the second quarter.¹

Chart 7
Maturity structure of the central government’s foreign currency debt

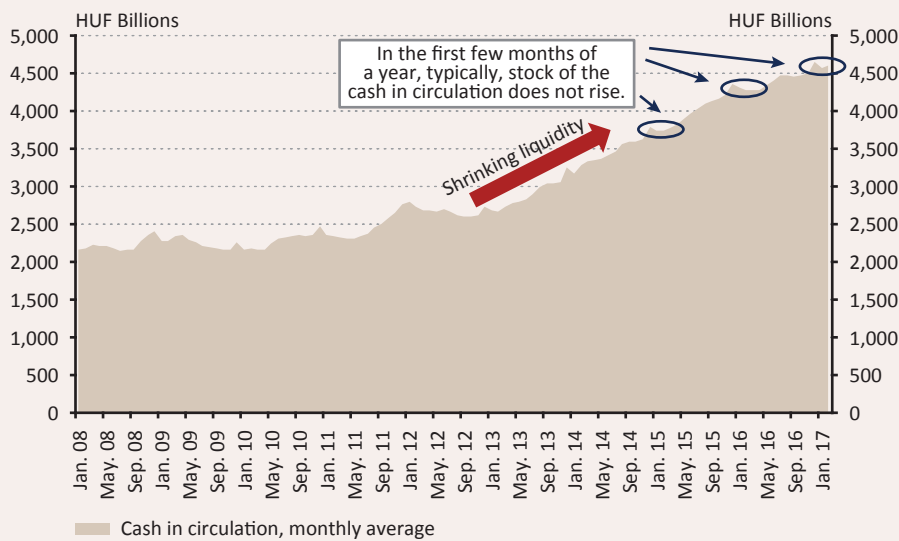


Source: Debt Management Agency

¹ Forint market issuance plan between April and June 2017: <http://akk.hu/uploads/mn0A557q.pdf>

Consistent with the trend of previous years, cash in circulation may continue to increase throughout the rest of the year. Even in the past, developments in cash volume consistently pointed to liquidity contraction. Household demand for cash is mainly driven by economic growth: besides cash substitutes, a sizable part of transactions is still conducted in cash (in addition, demand for cash is also influenced by a number of other factors, such as the opportunity cost of cash holding, cash withdrawal charges). Consistent with the usual intra-year seasonality, the cash volume was more or less stable at the beginning of 2017; however, similar to the previous pattern, it may resume its increase in line with expected growth in household consumption, thereby reducing the banking sector’s liquidity.

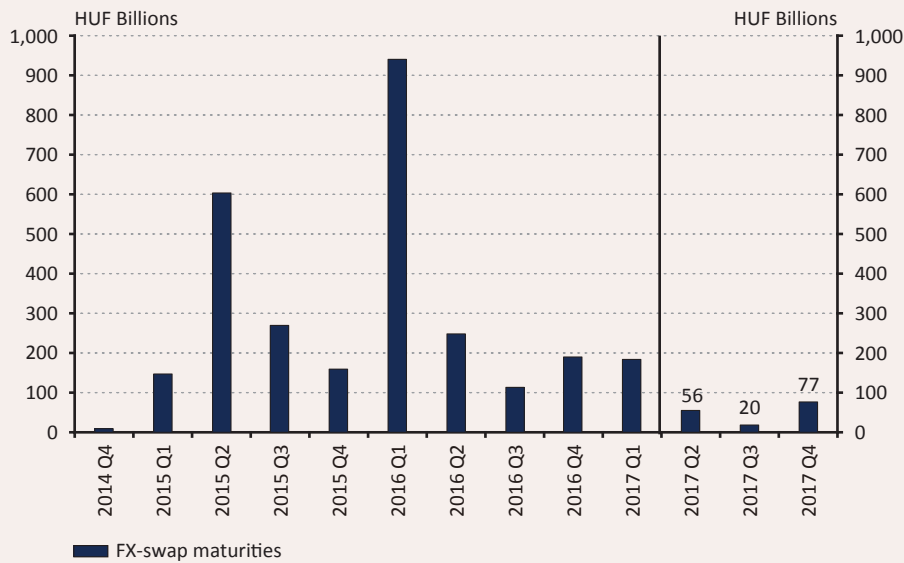
Chart 8
The stock of cash in circulation



Source: MNB

Most of the FX swaps related to the conversion of foreign currency household loans to forint have already expired; only minor swap maturities are expected in the coming period. The MNB provided banks with the foreign currency needed for the conversion of foreign currency loans from the foreign exchange reserves. The vast majority of foreign exchange transactions had pre-specified maturities, and the currency was effectively transferred to banks after the transactions matured. Upon maturity, banking sector liquidity decreases in parallel with the decline in the foreign exchange reserves, and banks receive the foreign currency from the MNB against their forint liquidity through the foreign currency transaction. A large part of maturing contracts caused a substantial contraction in liquidity over the past two years; however, there will be smaller maturities and hence, a more moderate liquidity contraction, in the coming three quarters.

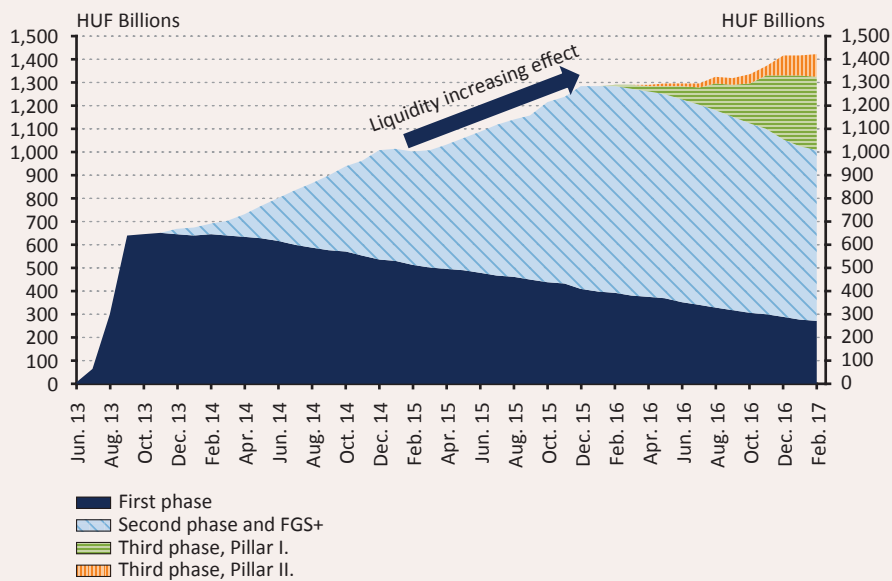
Chart 9
FX swap maturities linked to the conversion of foreign currency loans to forint



Source: MNB

The gradual fall in the stock loans built up in the frames of FGS is expected to begin in the next few months generating a protracted decline in banking sector liquidity. By the end of 2016, central bank receivables accumulated during the three phases of the Funding for Growth Scheme amounted to HUF 1,400 billion. As it is no more possible to conclude new contracts after the end of March, maturities will soon exceed withdrawals, thus from the second quarter of 2017, the liquidity expansion stemming from the earlier expansion of the loan stock is anticipated to turn to gradual reduction. The previously accumulated stock owing to longer maturities, will gradually expire stretching out until 2026.

Chart 10
Outstanding amount of FGS loans in the central bank balance sheet

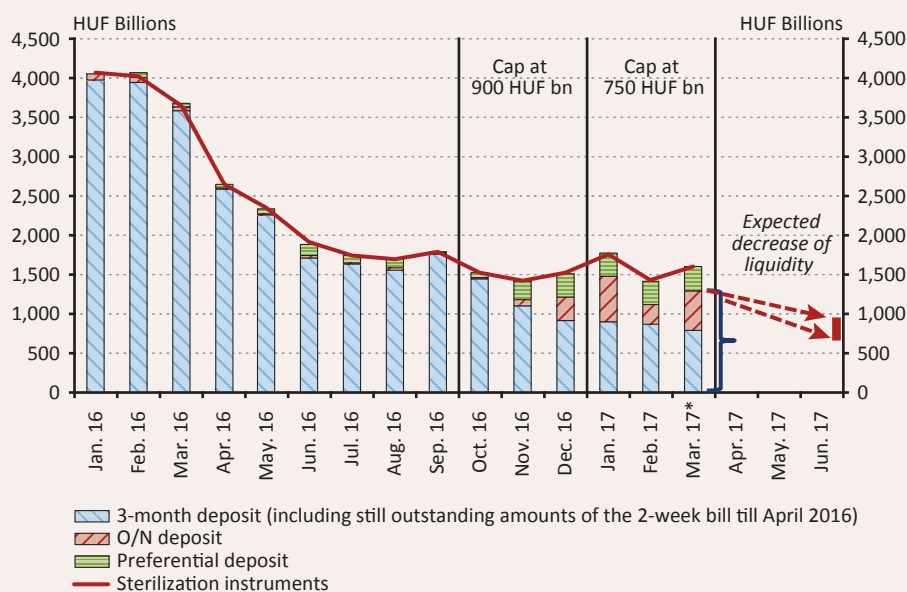


Note: Loans extended under Pillar II of the third phase – which is available to provide FX loans – don't have an effect on HUF liquidity, while HUF loans granted under this pillar are swapped to euro with a CIRS.

Source: MNB

In line with the eventually downward sloping liquidity path, banks' demand for three-month deposits may decrease significantly. Also in consideration of banks' potential accumulation of preferential deposit, as a result of the abovementioned liquidity effects, the combined amount of bank liquidity flowing into three-month deposits and O/N deposits may drop (potentially significantly) below HUF 1,000 billion by the end of Q2 compared to the monthly average of HUF 1,300 billion in March (estimation). This also means that the robust liquidity contraction itself may reduce banks' demand for the three-month deposit and hence, the liquidity to be crowded out, significantly.

Chart 11
Expected changes in the sterilisation instruments, monthly averages



* For March, as a whole, fact data were not available, therefore an estimation was used for March.

If the assumptions underlying the Bank's projections hold, maintaining the current level of the base rate and loose monetary conditions achieved through the change in monetary policy instruments for an extended period is consistent with the medium-term achievement of the inflation target. . The maintenance of the current loose monetary conditions in the system of quantity restrictions entails keeping the crowding out effect characterising the previous quarter unchanged.

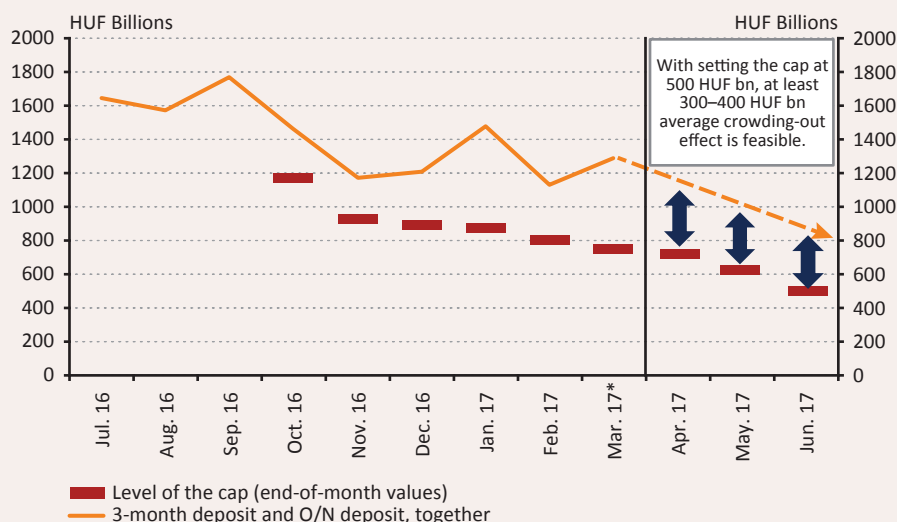
Besides the expected liquidity path, another key parameter in the definition of the quantitative limit is the desired crowding-out effect that is consistent with the monetary policy stance:

- the weakening of the crowding-out effect would translate into the tightening of monetary conditions;
- the maintenance of the crowding-out effect would be equal to the maintenance of existing loose monetary conditions; and
- the strengthening of the crowding-out effect would imply further monetary easing.

Consequently, with a declining liquidity path, the intended crowding-out effect may be achieved through a relatively more substantial reduction (compared to the previous quarter) in the quantitative limit to HUF 500 billion, which ensures the maintenance of the prevailing loose monetary conditions in Q2. If the sharp decline expected in banking sector liquidity materialises, the maintenance of the previous quantitative limit or a HUF 150 billion reduction thereof (which would correspond to the previous reduction) would result in a weaker crowding-out effect in the second half of the quarter. In that case, consistency with the maintenance of loose monetary conditions would not be achieved looking forward. Under the sterilisation path resulting

from the current liquidity projection, the desired minimum HUF 300–400 billion crowding-out effect can be achieved by reducing the limit more substantially to HUF 500 billion.

Chart 12
Expected liquidity path and the 3-month deposit cap for Q2, simulation



* For March, as a whole, fact data were not available, therefore an estimation was used for March.

Risks surrounding the liquidity path continue to revolve around budgetary processes and their financing, and the MNB is still prepared to address them, as appropriate, through the application of its fine-tuning instruments. Based on previous experiences, forint issues – pending demand side developments – are not necessarily in line with the financing plans. At the beginning of 2017, for example, unscheduled retail issues came as an unexpected surprise. Similarly, in the remaining part of the year the budget deficit and its financing path may also be subject to unexpected changes (e.g. change in demand for government securities, unexpected tax revenues or expenditures, or repo transactions of the Debt Management Agency) that may divert the liquidity path from its expected trajectory. Currently existing fine-tuning instruments of the MNB are still applicable for shifting liquidity in case of an unexpected increase or decrease in the level of liquidity. Since the risk of a persistent liquidity contraction is far more likely looking forward, the MNB decided to supplement its set of instruments with longer-term swap instruments besides the shorter-term (one-week, one-month, three-month) swaps applied so far. Longer-term (six-month and twelve-month) forint liquidity providing swaps may support the efficient functioning of the cap system – in case of lower liquidity path persisting over the medium-term, depending on the monetary policy stance.

**EXPERIENCES OF THE 3-MONTH DEPOSIT LIMITATIONS AND KEY CONSIDERATIONS
FOR DETERMINING THE CAP FOR THE SECOND QUARTER OF 2017**

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