Gergely Fábián and Róbert Mátrai: Unconventional central bank instruments in Hungary*

The financial crisis revealed that – due to the reliance of the Hungarian banking sector on external funding – the deterioration in the liquidity position can be a significant obstacle to lending in spite of the ample forint liquidity at the system level. The Magyar Nemzeti Bank introduced several unconventional instruments in order to ease the liquidity and financial tensions, to ensure the forint and foreign exchange liquidity of the banking system and to overcome money market turmoil in the crucial FX swap market. Due to banks' deteriorating lending capacity, the MNB continued to expand these instruments in early 2012. The set of instruments may reduce liquidity constraints, which restrain lending, and provides a safety net against unfavourable liquidity shocks.

INTRODUCTION

The escalation of the financial crisis in the autumn of 2008 caused major tensions in money markets and resulted in a deep recession in the world economy. Compared to peacetime monetary policy, central banks of the world gave unprecedented, unconventional responses in order to stop the negative spiral between the financial system and the real economy. The most widespread instruments were related to the expansion of the liquidity in the banking system. In addition, mainly in developed countries, following the zero lower bound of short-term interest rates, direct credit market interventions (asset purchases, direct lending) took place, and high volumes of government securities were purchased to reduce longer-term, risk-free yields.

The spill-over of the crisis seriously affected the indebted Hungary, as risks in the Hungarian banking sector – namely the foreign currency and maturity mismatches in bank balance sheets – became visible. Although at system level forint funds are abundant and the liquidity shock absorbing capacity of the banking sector is strong, significant asymmetry is seen at the individual bank level.

In addition, the main problem is the high FX swap market exposure, which plays an important role in covering the on-balance-sheet open FX position. In the case of an exchange rate shock, the additional forint liquidity need arising during the roll-over of swaps and due to the margin call reduces the forint liquidity of credit institutions with swap market positions. Swap market turbulences impair the efficiency of the monetary transmission mechanism and may jeopardise the stability of the banking sector as well. These risks may significantly increase in the case of strains due to the sovereign debt crisis and in the case of an excessive outflow of foreign funds due to stronger deleveraging by the euro-area banking sector.

The article below describes the unconventional instruments applied by the Magyar Nemzeti Bank and the background of their introduction. During the crisis, the Magyar Nemzeti Bank introduced several such instruments to ensure the forint and foreign exchange liquidity of the banking sector and to overcome turmoil in the key FX swap market. In order to offset rising risks on account of the escalating sovereign debt crisis, the MNB widened the safety net in 2012 by announcing a two-year collateralised loan and further liquidity providing instruments. Looking ahead, the universal mortgage bond issuance and the supporting central bank mortgage bond programme (in the case of amendment of the mortgage bond issue model) may provide a significant further boost to the increase of liquidity reserves and improvement of the maturity match. The set of instruments that is taking shape may reduce liquidity constraints which restrain lending and provides a safety net against unfavourable liquidity shocks.

* The views expressed in this article are those of the author(s) and do not necessarily reflect the offical view ot the Magyar Nemzeti Bank.

THE APPLICABILITY OF UNCONVENTIONAL CENTRAL BANK INSTRUMENTS IS LIMITED IN HUNGARY

In recent years, as a result of the financial crisis, several central banks (mostly in the more developed countries) introduced instruments that had not been applied earlier or used certain elements of its traditional instruments in a substantially more intensive manner than previously. In Hungary, these so-called *unconventional* instruments were introduced mainly in order to ensure the liquidity of the banking system and to overcome turmoil in key money markets. At the same time, other instruments deployed in developed countries, such as quantitative easing or direct credit market interventions (asset purchases, direct lending), are missing from the arsenal.

This is not country-specific aspect, though, as emerging countries very rarely use these types of instruments (Ishi et al., 2009). The main underlying reason is that in Hungary – similarly to many emerging countries – there is no direct danger of deflation, and the zero lower bound of the nominal interest rate is not relevant either, i.e. there would be room for using traditional monetary instruments as well, but a general easing of monetary conditions that disregards the inflation target is not consistent with the targets of the MNB. Moreover, a specific problem in Hungary is the significant foreign-exchange rate exposure of the private sector, as a result of which the depreciation of the forint entailed by monetary easing poses risks to financial stability. Furthermore, it is important to emphasise that these instruments may eventually entail fiscal costs, and the use of such quasi-fiscal instruments may pose a much higher risk for Hungary than for a more credible, developed country. Finally, securities markets (corporate securities and securities issued by banks) in Hungary are undeveloped for such interventions to be successful.

Overall, quantitative easing other than liquidity providing instruments or direct credit market interventions entail numerous dangers especially in catching-up, open and at the same time indebted countries such as Hungary, and thus the application of these types of instruments may also trigger negative market effects, contrary to the original objective (Krekó et al., 2012).

THE FX SWAP INSTRUMENTS OF THE MNB EFFICIENTLY CONTRIBUTE TO THE MAINTENANCE OF THE STABILITY OF THE BANKING SYSTEM IN A MORE TURBULENT MONEY MARKET ENVIRONMENT AS WELL

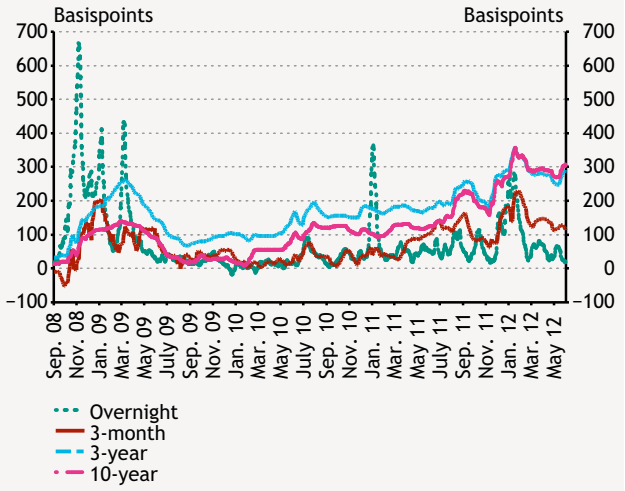
Following the Lehman Brothers bankruptcy on 15 September 2008, unfavourable market developments first appeared in the money markets in Hungary, which is considered to be particularly vulnerable due to its high external debt and low potential growth. In October 2008, higher global risk aversion, led to plummeting liquidity in domestic money markets coupled with a surge in asset sales by non-residents (MNB, 2009).

The reliance of domestic credit institutions on the FX swap market increased considerably in the past decade, due to foreign currency lending, which started to expand in 2004 and was mainly financed from forint funds. Starting from the autumn of 2008, non-residents' declining forint demand, coupled with a deterioration in the risk perception of the country, resulted in a depreciation of the forint and a surge in FX swap market spreads, which was accompanied by a deterioration in the liquidity of foreign-exchange markets. As a result, foreign exchange funds became much more expensive and harder to access for domestic banks, which impaired the efficiency of the transmission mechanism and jeopardised the stability of the banking system as well.

With the occurrence of FX swap market tensions in early October 2008, the MNB – appearing in the market as an intermediary – first introduced a two-way overnight FX swap facility and then, following the repurchase agreement concluded with the European Central Bank (ECB), launched an overnight FX liquidity providing EUR/HUF standing facility. The two overnight facilities allowed banks to continuously finance their FX liquidity needs even amidst the money market tensions that had evolved and facilitated a gradual return of overnight spreads to a level of around zero, which had been typical prior to the crisis.

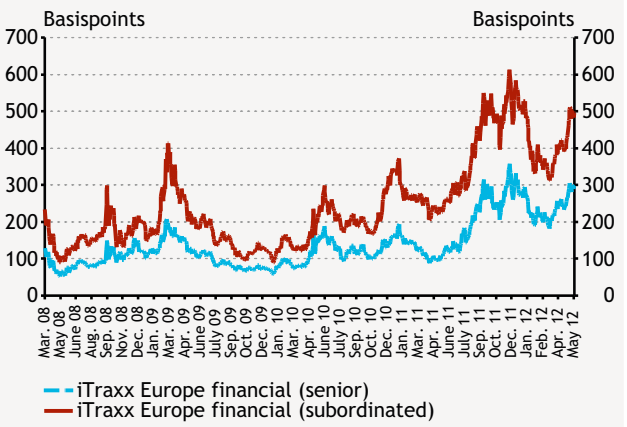
In 2009, the MNB introduced swap facilities with maturities longer than overnight. First, it launched Swiss franc providing one-week CHF/EUR swaps in February, before

Chart 1
FX swap spreads against the euro
(exponential moving averages)



Sources: Reuters, Bloomberg and MNB.

Chart 2
5-year CDS spreads of European banks



Source: Bloomberg.

introducing 3-month and 6-month EUR/HUF swap facilities in March. With the special conditions of participation in the 6-month swap tenders the MNB strived to control the fall in corporate lending. The swap facilities of the MNB efficiently reduced FX swap market spreads (Csávás and Szabó, 2010), although they were unable to stop the decline in lending. Although the spreads on swaps over one year also declined after March 2009, apart from short, temporary periods they did not return to their pre-crisis, close-to-zero level (Chart 1).

The recovery from the crisis and the consolidation on financial markets proved to be a short, as the crisis entered its second phase. In the second half of 2010, the European sovereign debt crisis erupted as a result of concerns emerging over the sustainability of government debt, surging as a result of unprecedented government interventions. With higher global risk aversion, FX swap spreads started to increase again from mid-2010 on. The increase in swap spreads accelerated at end-2011, when concerns related to the sustainability of debt surged. They reached their peak in January 2012, following the downgrading of Hungary. Thereafter, spreads were mainly influenced by changes in global investor sentiment and news related to the EU–IMF talks. Starting from end-January 2012 spreads declined, but at longer maturities they continue to exceed their 2008–2009 peak.

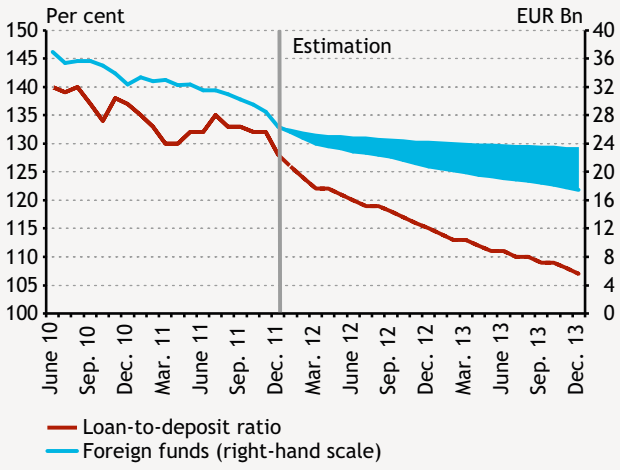
In the second half of 2011, a confidence crisis occurred, as a result of the deteriorating growth prospects due to the sovereign debt crisis, the sovereign exposure of European banks and fiscal consolidation, with these aspects all exacerbating one another. The extraordinary measures of the ECB, including the 3-year loan tenders, were only able to temporarily ease the persistent tensions on the financial markets. The perception of the capital position of European banks and their access to funds deteriorated considerably. In fact, European banks are considered riskier than during the 2008 crisis (Chart 2). As a result of the high reliance of the euro-area banking sector on wholesale funding, the mounting difficulties faced in raising capital on the markets and the limited capital injections from the state, the lending capacity of parent banks has been deteriorating, possibly compelling them to deleverage.[1] Therefore, in addition to the risk premium channel, the financial crisis may also be highly contagious through financial integration with parent banks.

The deleveraging of the euro-area banking sector poses serious external risks to Hungary, due to its high reliance on external funding with short maturities and its high degree of integration in finance and trading. Two negative risk scenarios may be distinguished: in the first case, banks in Western Europe may be compelled to strongly restrain lending due to the recurring increase in risks in the euro area, whereas in the second case deleveraging by these banks remains subdued, but the adjustment takes place asymmetrically, affecting Hungary to a greater extent. The risk of the latter may be significant, because of the weak profitability of the Hungarian banking sector in the past two years. As a result, the regional position of the country may weaken in the competition for foreign capital and funds.

These risks may basically lead to excessive outflow of funds, and parent banks may be less willing to inject capital; therefore, taking everything into account, affiliate

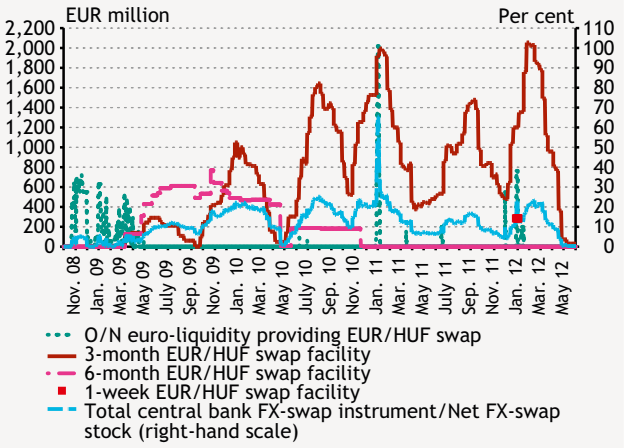
[1] For more details on the balance sheet adjustment of the euro area, see: BIS (2011), BIS (2012) and IMF (2012).

Chart 3
Loan-to-deposit ratio and foreign funds of the Hungarian banking sector in the baseline scenario



Note: In the case of the upper edge of the band, foreign liabilities are repaid only to an extent equalling the maturing FX assets and the inflowing foreign exchange deposits (FX swap holdings remain unchanged), whereas in the case of the lower edge, repayment includes forint liquidity becoming available from maturing forint loans or increasing from inflowing forint deposits (swap holdings increase).
Source: MNB, 2012.

Chart 4
Central bank euro liquidity providing swap facilities



Source: MNB.

banks will be compelled to deleverage on asset side. In spite of the significant balance sheet adjustment and outflow of foreign funds since the crisis, reliance on foreign funds remains high in Hungary, while short-terms funds represent a considerable proportion within foreign funds. As a result, roll-over risks may arise in the case of an escalating confidence crisis.

The main risk is that the withdrawal of foreign funds occurs with higher reliance on the swap market, as was observed recently. The swap exposure of the banking sector may grow by more than 50 per cent already in the baseline scenario, i.e. in line with the current forecast for loans outstanding and total deposits, if the banking sector is compelled to repay external liabilities from forint assets as well, in addition to maturing foreign exchange assets (Chart 3). The risks mentioned in connection with the euro-area banking sector may lead to an outflow of foreign funds exceeding even the baseline scenario, which – in parallel with more restrained lending – may result in an even higher reliance on the swap market than the forecast. All of this may take place in a permanently turbulent money market environment, as a result of which the FX liquidity safety net of the MNB remains extremely important.

Of the swap facilities, the MNB is maintaining the overnight standing facility and the 3-month swap. Accordingly, in the event of escalating market turbulences similar to those at end-2011 or a fall in the liquidity of the swap market, the MNB is able to provide the necessary foreign exchange liquidity for credit institutions in order to preserve the stability of the banking system. This was needed recently, as reliance on central bank instruments also increased considerably by end-2011 amidst growing money market tensions. As a result, swap exposure to the Central Bank amounted to some one fifth of the total FX swap holdings in January 2012. Thereafter, as a result of an improvement in investor sentiment, central bank swap holdings also declined gradually from February 2012 on (Chart 4). In order to provide the temporary foreign exchange liquidity required for the closing of positions at the end of the year,

Table 1
FX swap facilities of the MNB

Instrument	First tender	Last tender
Two-way overnight EUR/HUF FX-swap tender	13 Oct. 2008	15 May 2009
EUR/HUF overnight FX-swap standing facility	16 Oct. 2008	Daily announcement
1-week CHF/EUR FX-swap tender	2 Feb. 2009	25 Jan. 2010
6-month EUR/HUF FX-swap tender	2 Mar. 2009	28 June 2010
3-month EUR/HUF FX-swap tender	9 Mar. 2009	Weekly announcement
1-week EUR/HUF FX-swap tender	27 Dec. 2011	27 Dec. 2011

Source: MNB.

the MNB announced a one-off, one-week EUR/HUF swap extending over the end of the year with 28 December 2011 as the value date. Banks used the new facility in a value of EUR 290 million, and market quotations showed that the swap facility extending over the end of the year efficiently contributed to the decline in short-term swap spreads.

THE FORINT LIQUIDITY INCREASING MEASURES OF THE MNB CONTRIBUTE TO THE MITIGATION OF THE REAL ECONOMY EFFECTS OF THE CRISIS BY IMPROVING LENDING CAPACITY

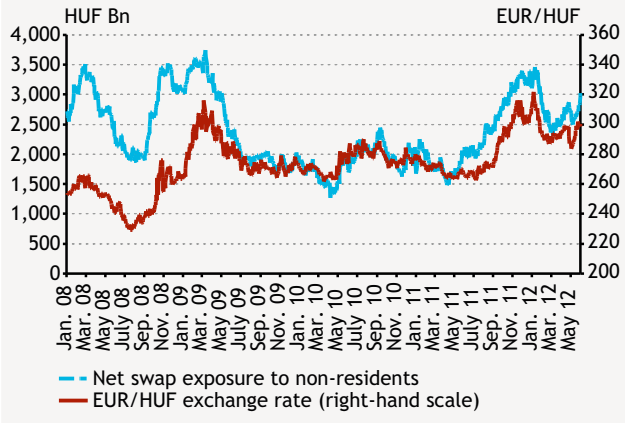
By 2008, the amount of FX swap holdings built up by the banking sector due to the surge in foreign currency lending (volume effect) reached the critical level when the change in the conditions of the swap market already significantly influences the forint liquidity management of credit institutions. As a result of the increase in the dependency on the FX swap market as well as due to the weakening of the forint (exchange rate effect)[2] and the resulting margin call effect,[3] in forints, the banking sector's net swap exposure to non-residents started to increase sharply in the autumn of 2008. From its level of HUF 2,000 billion in early September 2008 it increased to HUF 3,000 billion by mid-October and to HUF 3,500 billion by mid-November (Chart 5).

The additional forint liquidity requirement arising as a result of the increasing swap holdings reduces the free forint liquidity of credit institutions with swap positions. As a result, in more turbulent periods the liquidity positions of individual credit institutions may drastically change in a relatively short time, whereas with the use of the swap facilities of the MNB structural forint liquidity may also decline.

With efficiently functioning interbank markets, forints may flow without difficulties from credit institutions with a liquidity surplus to credit institutions facing a liquidity shortage. However, in the autumn of 2008 the increase in risk aversion resulted in a narrowing of limits vis-à-vis one another in the interbank forint markets and an immediate accumulation of liquidity reserves due to growing and increasingly uncertain liquidity needs. As a result, starting from October 2008 domestic credit institutions limited their lending in the interbank market and increased their central bank overnight deposits. All of these factors led to a fall in the liquidity of interbank forint markets, hampering the efficient redistribution of free forint liquidity among banks.

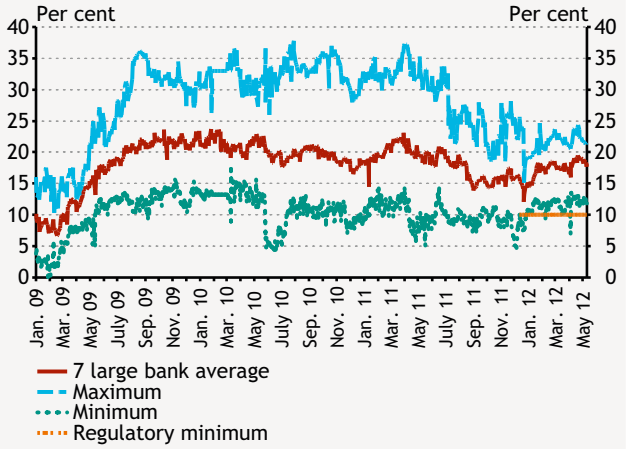
Although at a system level forint funds are abundant and the liquidity shock absorbing capacity of the banking sector is strong, significant asymmetry is seen at the individual bank level: some banks can just comply with the regulation

Chart 5
Net swap exposure of the Hungarian banking sector to non-residents and developments in the EUR/HUF exchange rate



Note: Net swap holdings show the difference between the long/short FX spot legs of domestic credit institutions.

Chart 6
Liquidity buffer of the seven large banks as a proportion of the balance sheet total



Source: MNB.

[2] In addition to the volume and exchange rate effects, the change in the currency composition of the asset and liability sides may also add to the dependency on the swap market (composition effect).

[3] The margin calls arising in the case of a weakening of the forint typically have to be satisfied in foreign exchange by banks; therefore, through its swap position the weakening of the exchange rate automatically increases the foreign exchange demand of the domestic banking system. Most of the arising demand for foreign exchange is diverted to the FX swap markets, also reducing the forint liquidity of some domestic banks.

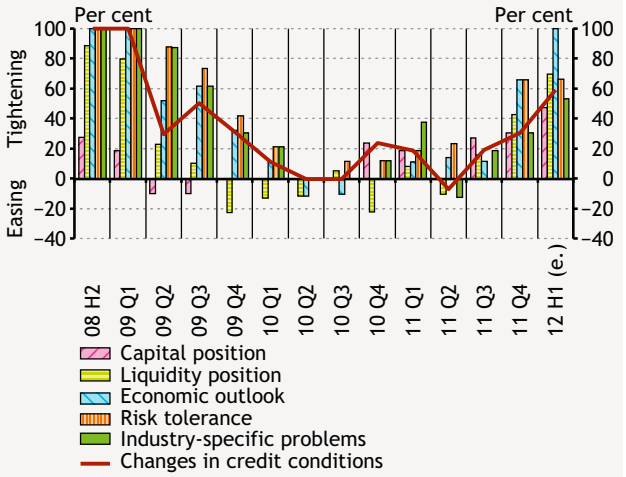
related to the balance sheet indicator introduced this year, which requires an at least 10 per cent liquidity surplus as a proportion of the balance sheet total,[4] while there is one bank where it even exceeds 20 per cent (Chart 6). As a result, in the case of a major liquidity shock it may happen to some credit institutions that the available free forint liquidity becomes limited for the stimulation of lending. Deteriorating lending capacity owing to the worsening liquidity position and the deteriorating willingness to lend due to banks' increasing risk aversion together resulted in a restraining of credit supply, which impaired the growth prospects for the real economy as well.

In response, the MNB contributed to the stability of the financial system and restoring banks' lending capacity by increasing the liquidity surplus and the liquidity reserves of credit institutions, thus providing a safety net against a possible unfavourable liquidity shock. Starting from October 2008 the MNB extended the scope of eligible collateral for central bank operations in several steps. First it increased the amount of eligible collateral with mortgage bonds issued by affiliated enterprises, then by reducing the rating criterion of corporate bonds to 'BBB–', and finally by the acceptance of local government bonds. As a result of the measures, the amount of eligible collateral increased by a total nearly HUF 800 billion (by more than one quarter) at the system level. With the increase of the size of potential borrowings from the central bank, the liquidity reserves of credit institutions also rose considerably (Table 2).

Starting from 21 October 2008, the MNB mitigated the liquidity shortage of some credit institutions arising in spite of the liquidity surplus at the system level by the introduction of two collateralised loan instruments with a maturity of more than one day. Recourse to the two-week and six-month loans peaked in November 2008, when loans outstanding were close to HUF 500 billion. In order to further increase available free liquidity, starting from December 2008 the MNB reduced the minimum reserve ratio from 5 per cent to 2 per cent, resulting in a HUF 450 billion decline in the reserve requirement of credit institutions.[5] Following the borrowing from the EU and the IMF, a further marked increase in the excess liquidity of the banking sector took place.

Despite the easing of money market tensions and the slow but steady recovery starting from the second half of 2009, banks remained risk averse. Consequently, credit supply constraints did not ease, mainly attributable to the decline

Chart 7
Changes in credit conditions and factors contributing to the changes in the corporate segment in Hungary



Source: MNB lending survey.

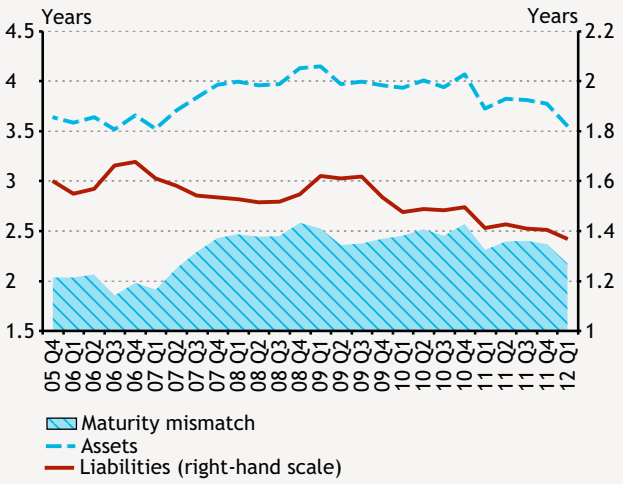
in the willingness to lend. At the same time, during the escalation of the crisis in the second half of 2011 the lending capacity of the Hungarian banking system also weakened considerably (Chart 7). As it was shown by the MNB's lending survey, the deterioration in lending capacity substantially contributed to further tightening of credit supply constraints. One reason was the decline in capital buffer caused by the early repayment scheme of foreign currency denominated mortgage loans and the deteriorating portfolio quality, while the other reason was the FX liquidity tensions. Furthermore, in spite of the considerable balance sheet adjustment since the outset of the crisis, no improvement took place in the maturity mismatch between the asset and liability sides, while the financial tensions that were expected to be temporary proved to be persistent (apart from some milder periods), which is reflected in expensive long-term loans and much more cautious bank behaviour.

In the current situation, the MNB can contribute to the strengthening of lending activity by using new instruments to support the liquidity of credit institutions. With monthly frequency, starting from April 2012, the MNB announced a variable-rate collateralised loan with a maturity of two years; its interest cost equals the central bank base rate prevailing during the maturity and can be prepaid by the debtors after one year (Table 3). For participation in the tenders, the MNB stipulates specific conditions that prevent a decline in corporate lending.

[4] In addition to the balance sheet coverage indicator, the deposit coverage indicator was also introduced. Banks have to comply with at least only one of the two indicators; therefore, some banks may not meet the criterion of one of the two indicators.

[5] Starting from November 2010, in order to facilitate the liquidity management of the banking sector, the MNB made the minimum reserve ratio optional in a band between 2 and 5 per cent (for more details see: Varga, 2010).

Chart 8
Maturity mismatches in the balance sheet of the Hungarian banking sector



Note: Weighted average of maturities calculated on a cash-flow basis.
Source: MNB.

The objective of the central bank in using this facility is to offset the shortening of the liability side of banks' balance sheets with this long-term loan without a term premium granted to credit institutions (Chart 8). Owing to the improvement in the maturity match which can thus be achieved, banks' balance sheets may strengthen, which may counteract the decline in lending capacity. In addition, this facility may ensure a smoother adjustment of the banking system with gradually decreasing reliance on external funding and increasing role of domestic funds.

The rising fluctuation of the forint exchange rate and the country risk premium increasingly force credit institutions to accumulate larger and larger amounts of forint liquidity reserves, which they can exchange for foreign exchange through swaps if necessary. The accumulated swap exposure may grow considerably as a result of the aforementioned outflow of foreign funds, increasing the sensitivity of the banking sector to exchange rate weakening coupled with risk premium shocks. Therefore, in 2012 the MNB continued the extension of the scope of eligible collateral that had started in 2008. Since April 2012, in its credit operations the central bank has accepted as collateral the FX government bonds issued by the Hungarian State and the MNB as well as FX corporate bonds that meet certain criteria. In addition, the scope of eligible markets was also extended, and credit rating criteria concerning corporate bonds also continued to ease.

Accordingly, with its measures in 2008–2009 and 2012 the MNB significantly extended the liquidity buffer of credit institutions, thus reducing the liquidity constraints that restrain lending and providing a safety net against a possible unfavourable liquidity shock.

Table 2
The process of extending the scope of eligible collateral in the MNB's credit operations

Measure	First tender	Estimated immediate effect
Acceptance of mortgage bonds issued by companies with which counterparty has close links	28 Oct. 2008	HUF 500 billion
Easing the credit rating criteria of corporate bonds to "BBB–"	18 Nov. 2008	No immediate collateral expansion, effects after country downgrading
Eligibility of bonds issued by local governments	20 Feb. 2009	HUF 300 billion
Eligibility of foreign currency-denominated government bonds and corporate bonds, broadening the range of acceptable markets, easing credit rating criteria	16 Apr. 2012	HUF 170 billion

Note: The exact description of the eligible collateral in the MNB's credit operations is contained in MNB (2012a).
Source: MNB.

Table 3
The MNB's forint liquidity providing facilities longer than one day

Type of loan tender	First tender	Frequency
Fixed rate tender of the 2-week collateralised loan	21 Oct. 2008	weekly
Variable rate tender of the 6-month collateralised loan	21 Oct. 2008	weekly
Tender of the 2-year base rate-indexed collateralised loan	3 Apr. 2012	monthly

Source: MNB.

SECURITIES MARKET INTERVENTIONS SUPPORT THE FINANCIAL SYSTEM BY INCREASING LIQUIDITY AND DISMANTLING BARRIERS TO LENDING

During the crisis, the MNB used unconventional instruments in the securities markets to ease strains in the government securities market as well as to stimulate the mortgage bond market.

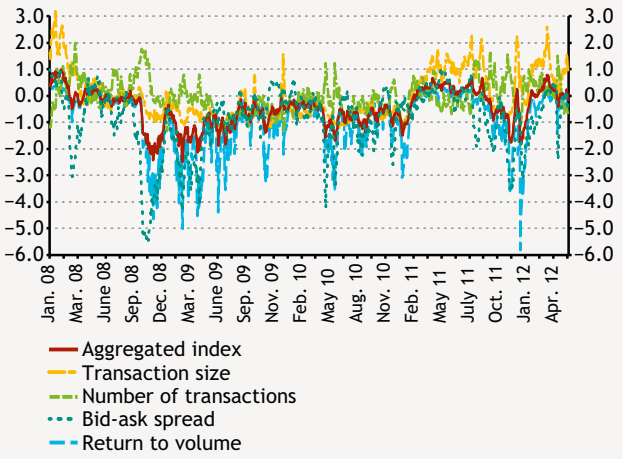
In October 2008, the sharp increase in concerns about the government securities market was reflected in the drying-up of the market and a surge in yields. In mid-October 2008, the MNB started to purchase government bonds in the secondary market in order to improve the liquidity of the market and to support the market making activity of market makers. Until end-2008, the MNB purchased government bonds with a total value of HUF 250 billion within the programme.

Banks supported the initiative aiming at offsetting the temporary pressure from foreign sellers, and strengthening this initiative they increased their government securities holdings to an extent exceeding the MNB's purchases. However, material improvement in the liquidity position could only take place as of November 2008, following the agreement with the EU and the IMF. Nevertheless, until early 2011 the value of the aggregate government bond market liquidity index[6] calculated by the MNB remained at a level below the long-term, pre-crisis average, and apart from some temporary upturns and downturns the state of the market only consolidated very slowly (Chart 9).

In addition to the effect of the EU–IMF agreement, the liquidity supporting measures of the Government Debt Management Agency as well as the rearrangement of the scope of foreign investors, the appearance of investors showing a higher willingness to take risks contributed to the improvement in the liquidity of the government securities market. In addition to all of these factors, the trust of investors in the commitment of fiscal policy and the credibility of the 2011 structural reforms was also necessary for the consolidation of the market.

In a forward-looking manner, the MNB announced a mortgage bond purchase programme with a framework amount of HUF 100 billion in February 2010 already, in order to stimulate forint lending and support the development of the mortgage bond market. The intention of the MNB was to increase the liquidity of the market through secondary market purchases and direct purchases in the case of primary issuances conforming to conditions that ensure more favourable liquidity. Until the closure of the programme at end-2010 the central bank purchased mortgage bonds with a total value of HUF 35 billion. As a result, mortgage bond market spreads somewhat declined in early 2010, but no major or permanent improvement was achieved.

Chart 9
Liquidity indices of the Hungarian government bond market



Source: MNB.

Due to the inactivity of mortgage banks (only one series was issued in that period) and the absence of the expected upswing in forint lending, the MNB did not announce the programme again in 2011. The programme revealed that the central bank is able to efficiently support banks in obtaining funds related to mortgage lending by market purchases only in the case of adequate willingness to issue. In this respect, the proposal of the central bank to amend the relevant provision of law to allow universal mortgage bond issue can be considered as a milestone. Based on the announcement of the MNB in February 2012, the universal mortgage bond purchase programme of the central bank can be launched after the adoption of the provision of law, which may significantly contribute to the stimulation of lending to households as well.

According to our calculations, even after the early repayment scheme, mortgage bonds could be issued for total mortgage loans amounting to some HUF 2,000 billion. However, the prevailing law does not allow credit institutions other than mortgage banks to issue mortgage bonds. In the event that the legal conditions of universal mortgage bond issue supported by the MNB are implemented, and banks issued mortgage bonds on the total potential loans outstanding, the current outstanding amount of mortgage bonds

[6] For more details on the liquidity indices of the MNB, see: Páles and Varga, 2008.

Table 4
Magnitude of potential mortgage bond issue based on 2012 Q1 data

	Banks and foreign branches (excl. Home Savings and Loan Associations)	End of 2012 Q1 (billion HUF)
1	Total mortgage loans outstanding	5,809
2	Mortgage loans complyingwith the 70 per cent LTV limit*	5,200
3	Outstanding amount of mortgage bonds	1,487
4	Total potential additional issuance (2–3)	3,713
5	Mortgage loans complying with proper legal documentation (estimation)	2,150
	– without mortgage banks	1,566

** Loans exceeding 70 per cent LTV (loan-to-value ratio), the outstanding amount up to the 70 per cent were taken into account. Pursuant to Act XXX of 1997, the loan may be taken into account as ordinary security up to 70 per cent of the loan security value. A considerable share of the potential loans is denominated in foreign currency, but a pick-up in forint lending may increase the role of the forint. Non-performing loans further reduce these holdings by approximately 10 per cent, although no exact information about this is available according to LTV distribution.*
Source: Author's calculations based on MNB data.

amounting to some HUF 1,500 billion could more than double, but even an issue volume based on one quarter or one fifth would result in an increase of several hundred billion forints (Table 4).

Mortgage bond issues that may be boosted by the amendment in legislation allowing universal mortgage bond issue may contribute to the stimulation of lending as well as to the strengthening of the stability of the banking system. Firstly, long-term liabilities provided by mortgage bonds are safer as they reduce roll-over risks. Secondly, the issue of mortgage bonds that are eligible collateral for the MNB increases the amount of potential borrowings from the central bank. Increasing the size of the eligible collateral by as much as up to HUF 2,000 billion, reinforcing effect of the roughly HUF 1,000 billion issued so far.

Following the amendments, the MNB may support universal mortgage bond issues by market purchases as well. The potential liquidity surplus may provide an efficient safety net against liquidity shocks to credit institutions and may facilitate the dismantling of the barriers to lending by the banking sector. In addition, the possibility of mortgage bond issue in itself may provide a sense of security for credit institutions and thus may also have a positive effect on the perceived liquidity position of banks.

SUMMARY

Central bank responses to the crisis are considered unprecedented. At the same time, the use of so-called unconventional instruments is considered as sailing on dangerous waters for monetary policy, especially in catching-up, open and at the same time indebted countries such as Hungary. Under these circumstances, the MNB strived to ensure the forint and foreign exchange liquidity of the banking system and to overcome the turmoil in the crucial FX swap market.

High reliance on the FX swap market makes the banking system vulnerable and may also considerably impair forint liquidity at individual level in spite of the ample forint liquidity at the system level. As a response, starting from October 2008 the MNB introduced several new FX swap facilities, which contributed to the easing of tensions. In addition, the MNB contributed to the stability of the financial system by increasing the forint liquidity surplus and widening the liquidity buffer of credit institutions. In the case of persistently turbulent money markets due to the escalating sovereign debt crisis and excessive outflow of foreign funds, the banking sector's reliance on the swap market may continue to increase, and thus there may be a continued need for the safety net of the MNB.

Due to rising liquidity risks in early 2012, in addition to the extension of the scope of eligible collateral, the MNB introduced a two-year collateralised loan facility, which may strengthen banks' balance sheets through an improvement in the maturity match, offsetting the decline in lending capacity.

The central bank's proposal to amend the relevant legislation in order to allow universal mortgage bond issue and thus the possible pick-up in mortgage bond issues may be considered as a milestone in liquidity provision and in the improvement of the maturity match. As a result, roll-over risks may decline markedly, and the liquidity buffer may also increase significantly due to the considerable expansion of collateral. The central bank would support the success of all these by an asset purchase programme as well.

The set of instruments that is taking shape reduces liquidity constraints, which restrain lending, and provides a safety net against unfavourable liquidity shocks.

REFERENCES

BIS (2011), 'The impact of sovereign credit risk on bank funding conditions', *BIS CGFS Papers,* No. 43.

BIS (2012), 'European bank funding and deleveraging', *BIS Quarterly Review,* March.

Csávás Cs. and Szabó R. (2010), 'A forint/deviza FX-swap szpredek mozgatórugói a Lehman-csőd utáni időszakban', [Determinants of Hungarian forint FX swap spreads after the Lehman crisis], *Hitelintézeti Szemle,* 9. évf. 6. sz.

IMF (2012), *Global financial stability report,* April.

Ishi, K., M. Stone and E. B. Yehoue (2009), 'Unconventional Central Bank Measures for Emerging Economies', *IMF Working Paper,* No. 09/226.

Krekó J., Balogh Cs., Lehmann K., Mátrai R., Pulai Gy. and Vonnák B. (2012), 'Nemkonvencionális jegybanki eszközök alkalmazásának nemzetközi tapasztalatai és hazai lehetőségei', [International experiences and domestic opportunities of applying unconventional central bank instruments], *MNB-tanulmányok,* 100.

Magyar Nemzeti Bank, *Senior Loan Officer Opinion Survey on Bank Lending Practices,* URL.

Magyar Nemzeti Bank (2009), *Report on Financial Stability,* April.

Magyar Nemzeti Bank (2012a), *Terms and Conditions of the Operations of the Central Bank in Forint and Foreign Currency Markets,* 16 April 2012, URL.

Magyar Nemzeti Bank (2012b), *Report on Financial Stability,* April.

Páles, J. and L. Varga (2008), 'Trends in the liquidity of Hungarian financial markets – What does the MNB's new liquidity index show?', *MNB Bulletin,* April.

Varga, L. (2010), 'Introducing optional reserve ratios in Hungary', *MNB Bulletin,* October.