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The Reduction of External Vulnerability and Easing of Monetary Conditions with a Targeted Non-Conventional Programme: The Self-Financing Programme of the Magyar Nemzeti Bank¹



Summary

In addition to its primary task of achieving and maintaining price stability, the Magyar Nemzeti Bank (Central Bank of Hungary – MNB) views the reduction of Hungary's external vulnerability as a key priority. For that reason in the spring of 2014 the central bank introduced the Self-Financing Programme, in the context of which its policy instruments were restructured in order to crowd bank liquidity out of the sterilisation instruments and redirect it to the market of liquid securities. The Programme has met its initial goals as the external vulnerability of Hungary has decreased significantly. Between spring 2014 and December 2016 the Hungarian government repaid EUR 11 billion of its foreign currency debt from forints, the foreign currency ratio of govern-

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ment debt lowered to around 25 per cent from the previous 50 per cent, while gross external debt decreased also significantly. While the primary goal of the Programme was to reduce Hungary's external vulnerability, the measures were also intended to facilitate the easing of monetary conditions in an unconventional way. The yield-impact of the Self-Financing Programme could be around 75–90 basis points which makes that the Programme supplemented the yield-effect of central bank interest rate cuts with a magnitude of one half of their effect between 2014 and 2016.

Journal of Economic Literature (JEL) code: E52, E58, H63, G21

Keywords: self-financing, monetary policy, financial stability

INTRODUCTION

Hungary accumulated unsustainable debts before the crisis started in 2007, and a significant portion of the debts was denominated in foreign currency. In spite of the series of retrenchments initiated after 2006, the deficit of the budget remained high, and the government debt showed an increasing trend. Household savings decreased, the current account deficit was significant for years, and this led to huge external indebtedness, while the level of foreign currency reserves was dangerously low compared to external debts. The high level of indebtedness and the unfavourable structure of the debt can be considered as one of the main reasons why Hungary was hit hard by the global financial crisis.

The vulnerability of the Hungarian economy fundamentally determined the macro-economic developments of the years following the crisis. The repayment of debts hindered internal demand for years, slowed down the recovery from the crisis and gradually demolished the long-term growth potential. This way the economic policy had to face the almost impossible task of performing a budgetary consolidation and laying down the foundations of sustainable growth at the same time.

The prolonged repercussions of the crisis and its escalation rendered Hungary's external economic and money market environment vulnerable. This rapidly changing, unconventional environment called for new, innovative monetary policy solutions. The turnaround in Hungary's monetary policy started in the summer of 2012 and gained momentum from March 2013. Since March 2013, the Magyar Nemzeti Bank has played an increasingly active role and has taken proactive steps to fulfil the mandates bestowed upon it in the MNB Act.²

One of these proactive steps was the introduction the Self-Financing Programme in the spring of 2014. The programme was intended to encourage banks to purchase liquid assets accepted as eligible collateral with a view to mitigating Hungary's external vulnerability by reducing the country's gross external debt. This study is presenting the concept and motivation, the structure, the phases and the results of the Self-Financing Programme.

CONCEPT AND MOTIVATION

At the outbreak of the crisis and in the years that followed, Hungary was counted among the countries that were considered vulnerable by international standards. The external fragility of the economy and excessive reliance on external foreign currency financing were among the main reasons. The main problem was that the crisis distorted the foreign currency composition of public debt: the share of foreign currency debt surpassed the levels seen in most European Union Member States by a large margin. Similarly, analyses and reports on Hungary identified its high external vulnerability as a key risk, the reduction of which had become one of the primary objectives of Hungarian economic policy by 2014.

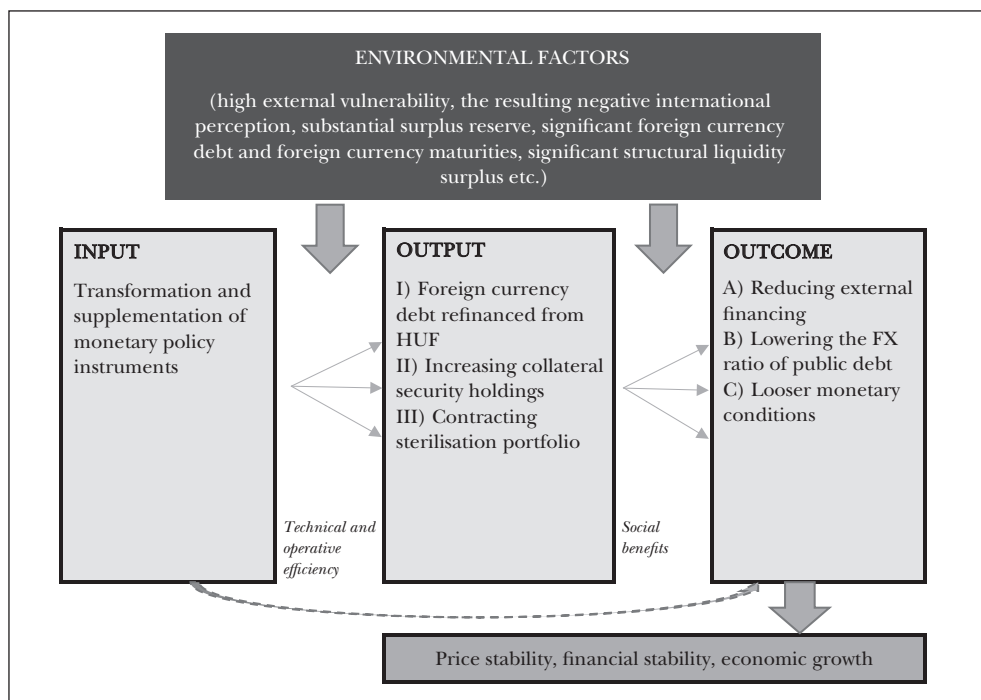
Without prejudice to its primary objective, the MNB supports the maintenance and reinforcement of financial stability and the economic policy of the Government using its disposable instruments.³ The concept aiming to reduce Hungary's vulnerability by financing government debt from internal funds is aligned with the MNB's objectives. A shift towards self-financing not only makes the funding of government debt safer, but the reduction of external and foreign currency debt will reduce the Hungarian economy's vulnerability, which benefits all economic agents. Lower external indebtedness can contribute to reducing debt-service costs by improving a country's risk perception and decreasing the risk premium, thus also indirectly fostering more sustainable economic growth. Lower external debt and a healthier debt structure may reduce the country's risk premium and contribute to reducing the costs of debt financing. Bringing down the economy's gross external debt is desirable as long as reducing foreign exchange reserves in a prudent way is possible, and therefore part of foreign exchange reserves can be used to further reduce the country's external vulnerability.

Reducing the external vulnerability is a relevant macro-economic objective. One possibility to achieve that objective can be via the modification of the operational framework of the monetary policy in the following way:

- As an unwanted consequence, central bank instruments with a good liquidity profile may encourage banks to adopt a liquidity management practice that relies far less on liquid securities and indirectly, this might increase external vulnerability. Indeed, in this case, bank liquidity will wind up in the central bank's balance sheet, while public debt is mainly financed by other sectors, especially by foreign investors, which may raise the level of external debt and increase the foreign currency ratio.

- When the central bank's liabilities side instrument is less liquid, by steering excess liquidity into liquid securities markets the central bank can play a more prominent role and contribute indirectly to the increase of the weight of domestic sectors and the decrease of external exposure. Another important aspect to consider is the fact that, if the external exposure entails increased foreign currency issuance, it may cause considerable sterilisation costs for the national economy due to the expansion of the central bank's balance sheet.

Figure 1: *The Self-Financing Programme framework*



Source: *The authors' own editing, based on Mandl–Dierx–Ilzkovitz, 2008.*

By transforming the liquidity profile of central bank instruments, the Self-Financing Programme can prompt banks to shift their funds towards liquid securities. Under the Programme, by modifying the central bank instruments the MNB raises, in a relative sense, the appeal of eligible non-central bank securities for banks and due to the specificities of the Hungarian securities market, this primarily affects government securities.⁴ Modifications to the monetary policy instruments under the Self-Financing Programme facilitate the reduction of foreign currency debt and external debt and hence, the external vulnerability of Hungary. Indirectly and over the longer term, the Self-Financing Programme supports price stability and financial stability, as well as economic growth (Kolozsi–Hoffmann, 2016b:9–34).

Figure 2: *Central banking instruments and external vulnerability*

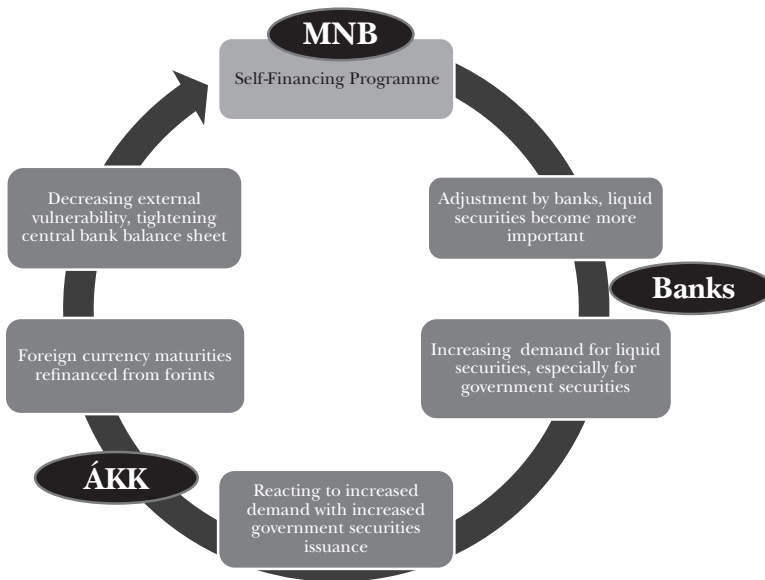


Source: *The authors' own editing*

The self-financing concept can be considered as cooperation between the MNB, the Government Debt Management Agency (ÁKK) and banks. In recent years and especially after 2012, several policy decisions were made with a view to reducing external vulnerability and improving the debt structure or furthering the achievement of these goals. The self-financing concept fit into these series of steps. It is important to see however that the self-financing concept is not a centrally coordinated programme, but rather a series of complementary measures and decisions. The success of self-financing depends, on the one hand, on the ÁKK's issuance of an adequate volume of forint-denominated government securities and on the other hand, on the ability of domestic investors to ensure the necessary, sufficient demand for such papers – this involves, in particular, the banking sector.

– It should be noted that, in addition to the natural consultation and cooperation between public stakeholders, individual members of the banking sector also voluntarily participated in the Programme. It is also important to underline that the Self-Financing Programme do not define any requirements regarding the investment of the banks' liquidity in particular assets.

Figure 3: Self-Financing Programme as cooperation between stakeholders



Source: Own figure

Parallel to the reduction in Hungary's external exposure, by 2014 the reserve holdings of the central bank increased significantly, and the resulting, marked improvement in reserve adequacy and accumulation of excess reserves⁵ over and above short-term external debt allowed for the cautious, gradual reduction of the reserves. One way of utilising the foreign exchange reserves is for the state to renew the bulk of its

maturing foreign exchange debt in forint, as it carries out the necessary conversions at the MNB, against its forint deposits. The self-financing concept and programme of the MNB takes advantage of this possibility with the objective of reducing reliance on external funds.

MEASURES OF THE SELF-FINANCING PROGRAMME

The specific measures of the Self-Financing Programme were aimed at “crowding” bank liquidity out of the MNB’s sterilisation instrument and “shifting” liquidity from the central bank to the market of liquid securities. Announced in the spring of 2014, the declared objective of the Self-Financing Programme was to stimulate banks’ purchases of domestically issued liquid securities in order to contribute to lowering the external debt of Hungary and improving the currency structure of financing. The MNB transformed its monetary policy instruments to encourage banks to invest their excess liquidity in liquid securities, which, due to the specificities of the Hungarian environment, primarily entailed a surge in the demand for government papers.⁶

In the context of the programme, the MNB worked to drive the excess liquidity of credit institutions out of the central bank and into the domestic securities market not only by reforming its existing, conventional instruments, but also by introducing new, unconventional instruments. In addition to crowding out bank liquidity, the MNB also supported banks’ adjustment via instruments channelling banks’ funds to the desired direction. The main such channelling instrument of the Self-Financing Programme was the conditional interest rate swap instrument (IRS),⁷ which has grown to become the iconic element of the Programme. With the introduction of the IRS, enabling banks to manage their interest rate risks, the MNB supported the banking sector’s adjustment to the reform of its monetary policy instruments by increasing their holdings of eligible securities.⁸

The measures adopted within the framework of the Self-Financing Programme between 2014 and the summer of 2016 can be divided into three phases. The Table 1 provides a brief summary of the important and relevant central bank steps as regards monetary policy effects.

Practically at the same time that the IRS tenders were terminated,⁹ the MNB decided to gradually limit access to the main policy instrument. As a first step, from August 2016 the MNB accepts deposits under its three-month deposit instrument once a month instead of the prior weekly frequency. By reducing the frequency of tenders, bank liquidity will be dispersed over three series instead of the 13, which means a significant concentration of deposits. As a second step, from October 2016 the MNB imposed a limit on the amount of bank liquidity that can be placed in three-month deposits.¹⁰

The reduced frequency of the three-month deposit instrument’s tenders and the capping of the same instrument from October 2016 mitigate money and capital market interest rates by rechannelling banks’ excess liquidity to low-interest deposit facilities of the MNB and to the interbank market. These steps represented a new opera-

Table 1: Measures (1) crowding bank liquidity out of the sterilisation instrument and (2) redirecting bank liquidity to the market of liquid securities

	Measures	Effectiveness
First phase (April 2014 – June 2015) ¹¹	The form of the main policy instrument changed: the two-week MNB bill was converted into a two-week time deposit	From 1 August 2014
	A forint interest rate swap (IRS) instrument was introduced, in which the MNB would pay a floating interest rate against a fixed rate	From 16 June 2014
Second phase (June 2015 – January 2016) ¹²	The three-month, fixed interest central bank deposit became the MNB's main policy instrument replacing the two-week deposit, available to banks without quantity restrictions	From 23 September 2015
	The two-week deposit facility remained a part of the MNB's instruments primarily for liquidity management purposes, but from the end of 2015 the MNB limited the amount to be held in the instrument to HUF 1,000 billion	From 23 September 2015
	The interest rate around the base rate available on the overnight standing facilities was made asymmetric	From 25 September 2015
	Traditional loan tenders' maturities were reduced to a half ¹³	From 30 September 2015
	The optional reserve ratio system introduced in 2010 ¹⁴ was terminated, and a uniform required reserve ratio of 2 per cent was applicable to all credit institutions ¹⁵	From December 2015
Third phase (January 2016)	The MNB phased out the two-week central bank deposit in two steps ¹⁶	April 2016
	Termination of IRS tenders	From 7 July 2016

tional framework of monetary policy and resulted a decline in market rates by crowding out excess liquidity remaining at banks from the policy instrument. As liquidity crowded out can flow into the interbank market¹⁷ and the government securities market through the Bank's other existing deposit instruments, the resulting interest rate effect arises in these sub-markets, supporting the Bank's schemes to stimulate bank lending and its self-financing programme as well.

The stability of the base rate in itself is an important value, as a persistently unchanged interest rate level means greater predictability and better security of planning for market participants, thereby facilitating long-term economic decision-making (see Nagy–Virág, 2016). Bearing all this in mind, the MNB does not endeavour to reach the lowest possible base rate attainable in the short run, but aims at a sufficiently low base rate level, whose continued maintenance, facilitates the medium-term achievement of the inflation target.

In the above described situation, by stimulating liquidity flows in the banking sector, unconventional instruments are able to contribute more efficiently to the achievement of the MNB's objectives than a reduction in the base rate. With the base rate remaining unchanged, the MNB decided to limit the access to the three-month deposit facility in order to ease monetary conditions in a targeted way.

In July 2016 the MNB decided to limit the access to the three-month deposit facility. As a result of the crowded-out liquidity and the banking sector adjustment, a significant decline in yields may be achieved in the relevant financial markets, even with a stable base rate. As a result of a quantitative restriction on the three-month deposit, liquidity crowded out flows into other assets. Eventually, liquidity crowded out may flow through the interbank market into low-interest, overnight central bank deposits and to the government securities market, reducing yields in these market segments.

The amount of liquidity actually crowded out is determined by the quantitative limit on the three-month deposit as well as by developments in the banking sector's overall liquidity in the given period.

RESULTS OF THE SELF-FINANCING PROGRAMME

According to the impact mechanism of the Self-Financing Programme, banks' increased activity and demand in the liquid securities market can contribute to the refinancing maturing debt from forint issues and thus for reducing external vulnerability.

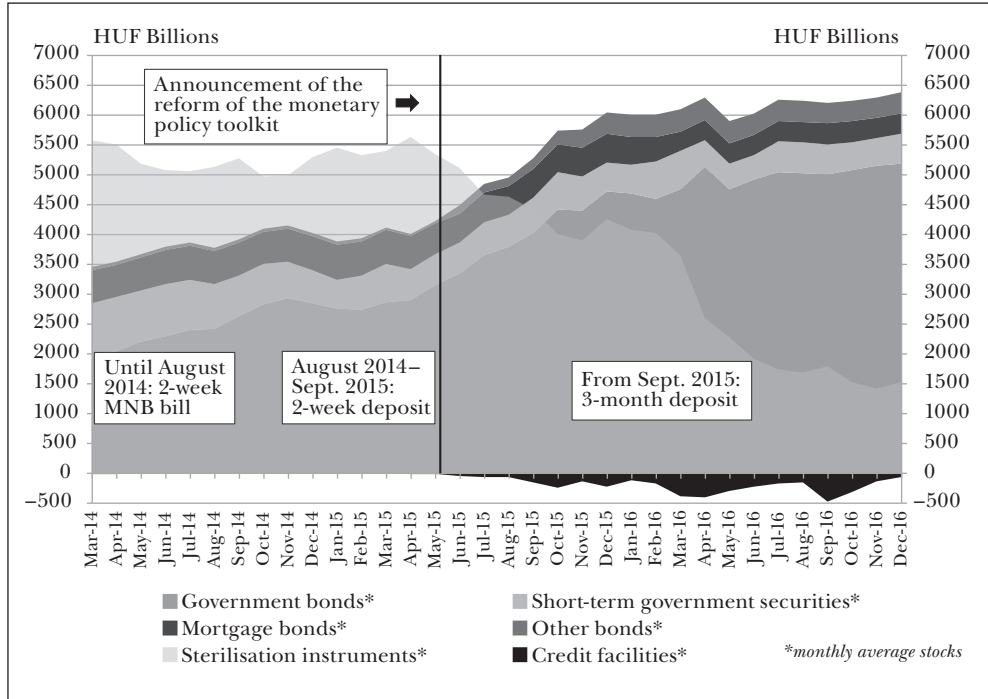
Increasing banking sector's demand for liquid collaterals

Since the commencement of the Self-Financing Programme the banking sector's demand for liquid securities increased significantly. It is worth emphasising that apart from government securities, banks also have been using mortgage, corporate and other bonds in their adjustment in practice. This implies that banks' adjustment to the changes in the monetary policy instruments and in liquidity requirements was largely completed. During the Self-Financing Programme, the banking sector as a whole increased its demand for liquid papers, and the effect on banks participating in IRS tenders was especially remarkable. Developments in the banking sector's liquid securities portfolio largely reflect the purchases of banks taking recourse to the MNB's IRS instrument. The two groups' different behaviour suggests that the central bank's IRS instrument was mainly used by banks, whose compliance with the announced modifications to the monetary policy instruments and to the liquidity requirements entailed a significant degree of adjustment and hence considerable extra demand for liquid securities.

The Self-Financing Programme restructured the range of securities accepted in central bank operations as collateral. The conversion of the MNB bill to deposit in August 2014, the extension of the maturity of the main policy instrument and other central bank measures encouraged banks to adjust to the new framework by increasing their collateral portfolio in view of the contraction of central bank liquidity. On the whole, banks

responded to the decline in the sterilisation portfolio by raising the volume of their other liquid instruments, which generated a substantial increase in their eligible collateral.

Figure 4: Eligible collaterals and central bank instruments held by counterparties



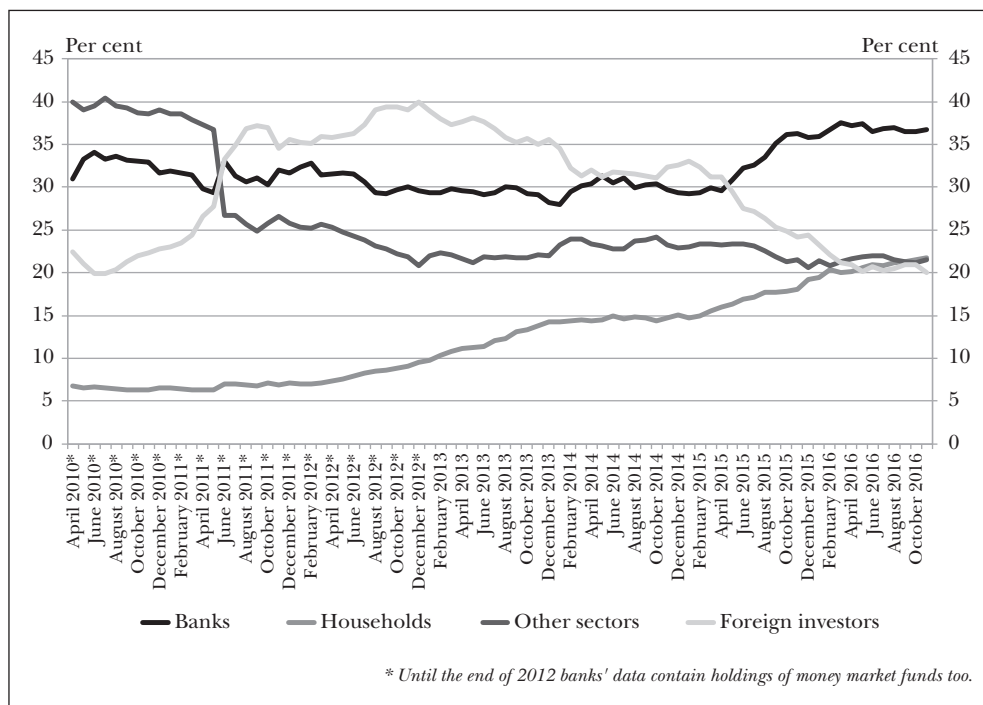
Source: MNB

Credit institutions began to increase their holdings of liquid securities after the announcement of the Self-Financing Programme. Similarly, banks' demand grew significantly after the introduction of IRS tenders in June 2014 and after the conversion of the two week MNB bill into a deposit in August 2014. Banks stepped up their liquid securities purchases after the MNB's announcement on the continuation of the Self-Financing Programme and on the transformation of the main policy instrument on 2 June 2015, which – with the exception of a temporary decline typical of the end-of-year period – progressively boosted banks' holdings of liquid securities. Banks' demand for securities in 2016 Q1 was driven by the announcement of the phase-out of the two-week deposit – which had been announced for a limited quantity – and by the entry into force of the 100 per cent LCR requirement in April 2016.¹⁸

Regarding type, the increase in the holdings of liquid securities can be attributed, in an extended part to HUF-denominated, long-term, fixed-rate government securities.¹⁹ The share of longer-term securities in banks' government securities holdings increased during the Self-Financing Programme, which improves the stability of government debt financing. As early as the end of 2014, the average remaining term of

banks' HUF-denominated government securities rose to 3.6 years from 2.8 years in the previous year, and by the end of 2016 it reached almost 4 years. Instead of non-residents, the domestic banking sector became the largest holding sector in the market of HUF dominated government securities.

Figure 5: *Share of holding sectors in the market of HUF-denominated government securities*



Source: MNB, securities statistics, nominal values

As the availability of sufficient liquidity is a prerequisite for lending, it is important to underline that although bank liquidity held in central bank instruments decreased in the wake of the Self-Financing Programme, this decline was offset by the purchases of eligible securities. This means that banks are capable of financing sound loan requests, and the Self-Financing Programme did not bring about any changes in this regard. In other words, the purchases of liquid securities (which are especially appealing from a liquidity standpoint) do not prevent banks from financing the real economy. The Self-Financing Programme may even lead to an acceleration in lending dynamics indirectly, via the reduction in external vulnerability.²⁰

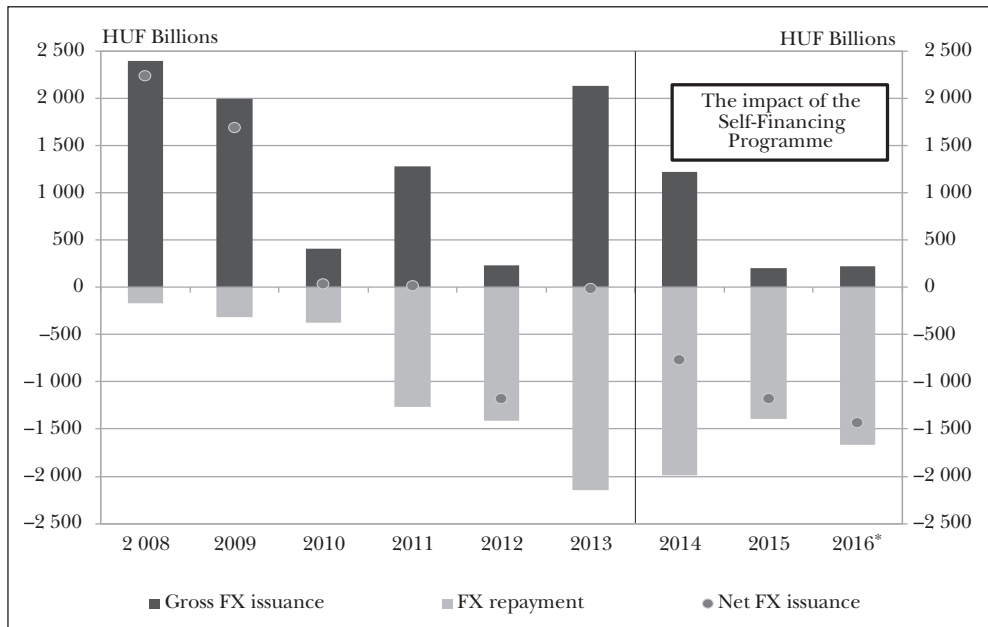
Repayment of foreign currency debt by forint issuances

The financing of government debt from internal funds is primarily achieved through the reduction of foreign currency issuance, the repayment of foreign currency bonds

and maturing foreign currency debt from forint funds and increased forint debt issuance. All of this was made possible by domestic banks' additional demand for liquid securities. From mid-2014 the Hungarian government no longer needed to borrow, in net terms, foreign currency for performing its instalments of international loans and for the refinancing of maturing foreign currency bonds, as sufficient forint funds were available to finance the general government.

Through banks' increased demand for liquid collaterals and especially government securities, the foreign currency debt repaid by the Hungarian government from forint issues amounted to EUR 2.5 billion in 2014, EUR 3.9 billion in 2015 and EUR 4.6 billion in 2016. The higher supply of HUF-denominated government securities linked to the self-financing concept was made possible – in addition to the robust household demand – mostly by banks' heightened demand. The difference between foreign currency borrowing and repayments (net foreign currency issuance) of ÁKK stood at HUF –766 billion in 2014, HUF –1,185 billion in 2015 and HUF –1,440 billion in 2016. This represents a sharp change compared to previous years: in the years preceding the announcement of the Self-Financing Programme, the net foreign currency issuance of the government was either positive or close to zero.

Figure 6: Foreign currency issues and redemptions of the government



Source: ÁKK

In 2014, net foreign currency issuance turned strongly negative. Net foreign currency issuance declined further in 2015 and the government repaid most of its maturing debt from forint funds. During 2015, in addition to rising bank demand,

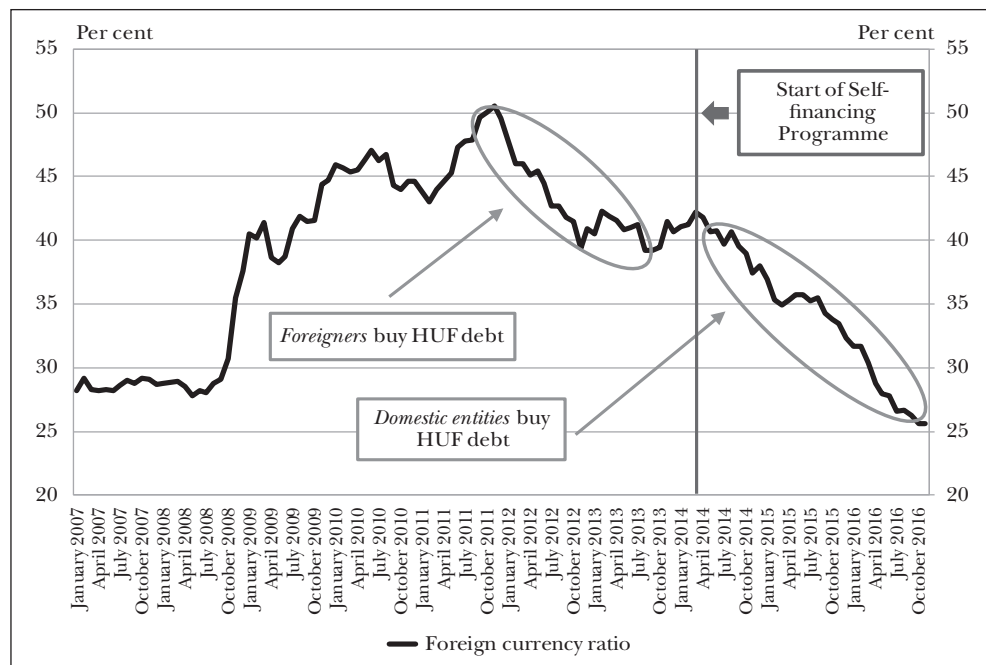
households' sharply increasing demand for government securities also contributed substantially to the fact that the bulk of maturing foreign currency debt was refinanced from forint funds. In 2016, government financing from internal funds continued: net foreign currency issuance fell to HUF –1440 billion, reflecting, for a significant part, the last instalment of the IMF/EU credit facility.

Declining external and foreign currency debt

Assuming that non-resident investors hold the bulk of foreign currency public debt owed to sectors other than households, any decline in foreign currency debt lowers the gross external debt of the government. The self-financing concept reduces the foreign currency ratio of public debt as it refinances foreign currency debt with forint debt.

In the context of the Self-Financing Programme, the foreign currency debt of non-residents decreased, and the forint debt of domestic banks and households increased; accordingly, Hungary's external vulnerability declined. Compared to 42 per cent in March 2014, the foreign currency debt ratio dropped to below 30 per cent in March 2016 before falling to around 25 per cent at the end of 2016.

Figure 7: *Foreign currency ratio of central government debt*

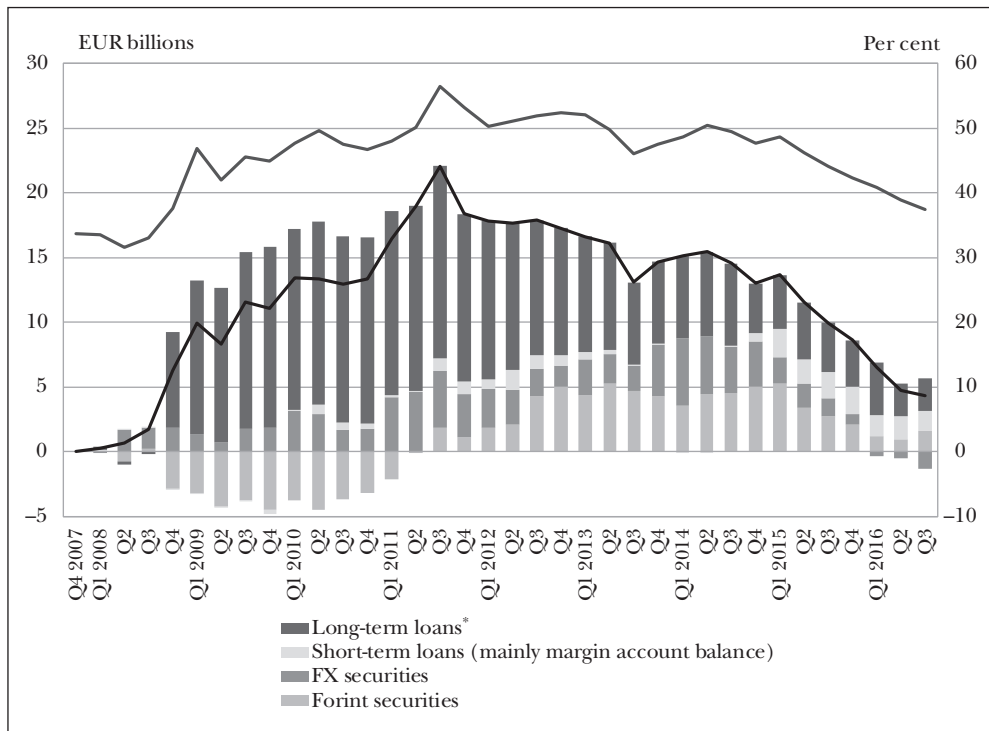


Source: ÁKK, 2016

The gross external debt of the general government began to decrease in 2014, with the decline accelerating in 2015. The net repayment of external foreign currency

debt continued, while non-residents also began to reduce their forint government securities portfolio. Nevertheless, the financing of the general government remained unimpaired with domestic participants' unprecedented surging demand for government securities stemming from banks' increased interest in liquid securities and from heightened household demand for government securities. The government, therefore, succeeded in reducing external foreign currency debt and forint debt simultaneously. During the period of the Self-Financing Programme, gross external government debt dropped from 50 per cent to nearly 40 per cent of GDP.

Figure 8: Decomposition of the gross external debt of the general government (cumulative transactions from end 2007)



*Long-term loans also include IMF-EU loans

Source: MNB

Hungary's external vulnerability declined in 2016 and the adjustment of debt indicators continued as well. Net external debt fell to nearly 20 per cent of GDP, while the gross external debt-to-GDP ratio declined to below 70 per cent. Considering that short-term external debt declined to a greater extent than the decrease in FX reserves, the level of FX reserves at the end of 2016 of around EUR 24 billion is still well above the level expected by investors (according to the most relevant indicator, the Guidotti-rule).²¹

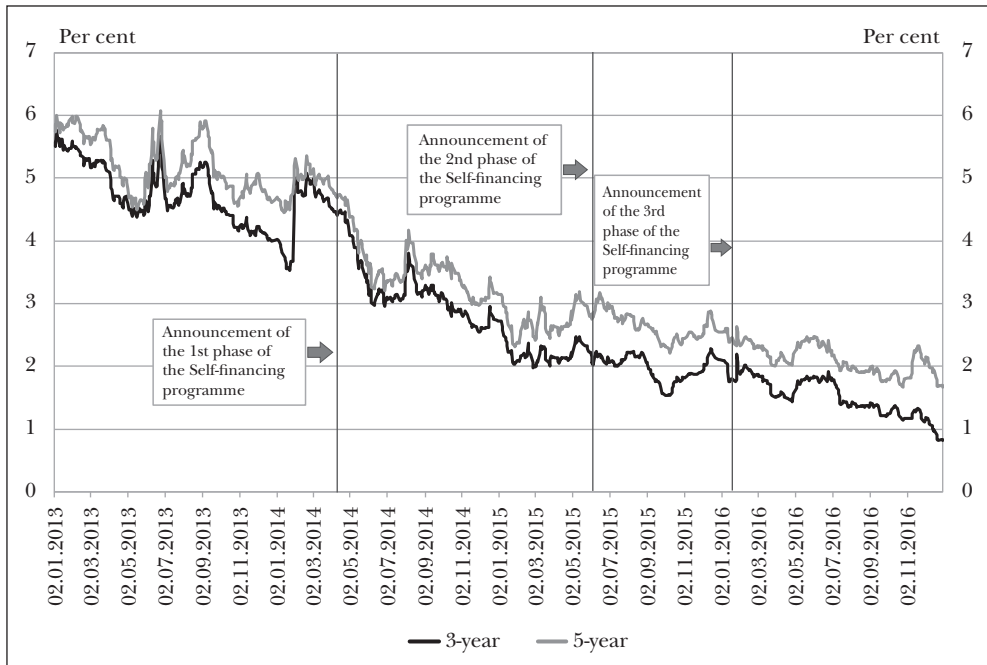
Easing monetary conditions

The primary objective of the MNB is to achieve and maintain price stability. Since 2001, Hungary has pursued an inflation targeting monetary strategy which means that the central bank sets an explicit inflation target as the ultimate goal. Since 2007, the inflation target of the MNB has been 3 per cent.²²

With a view to achieving the inflation target and providing sufficient stimulus to the real economy, between August 2012 and June 2016 the MNB lowered the central bank base rate from 7 per cent to 0.9 per cent. Parallel with that targeted programmes were implemented. The Self-Financing Programme was such a targeted non-conventional programme with the declared purpose of complementing the MNB's easing cycles, aligning its measures with the trajectory of conventional monetary policy.

After the announcement of the different phases of the Self-Financing Programme, long-term yields decreased significantly. During the first phase of the Programme in April 2014 the decline was significant, and a decline was observed after the announcements in June 2015 and January 2016 as well.

Figure 9: *ÁKK benchmark yields*

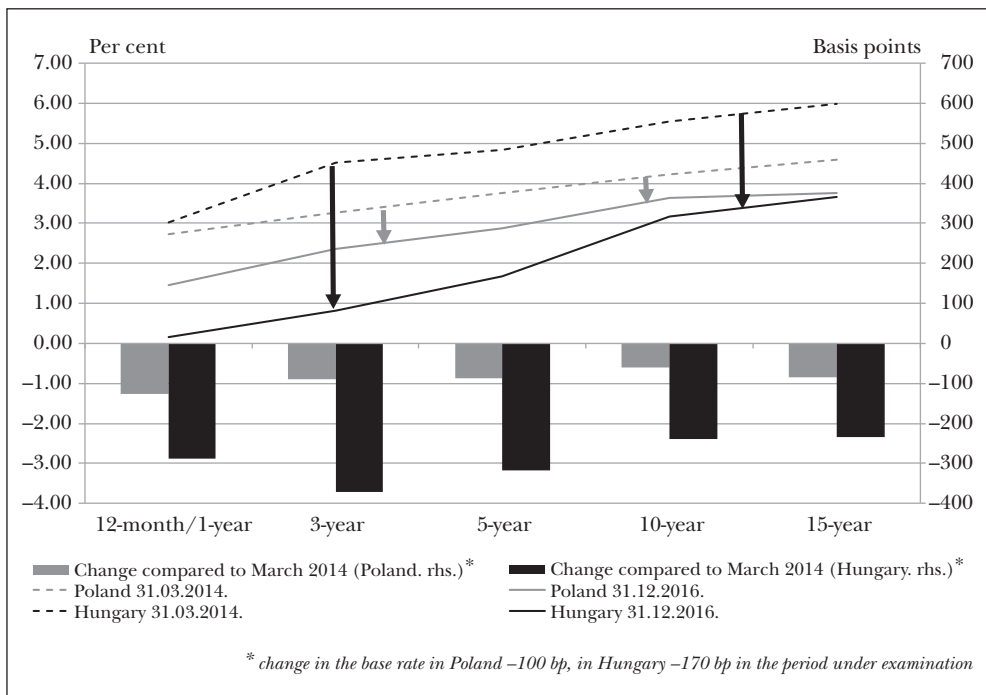


Source: *ÁKK*

Hungarian benchmark yields have declined more sharply across all maturities since the announcement of the Self-Financing Programme than the Polish benchmark yield serving as a point of reference. If we consider the movements of Polish

yields as the consequence of the modification of the international environment in Central and Eastern Europe, we can conclude that the country-specific decrease of Hungarian yields was around 120-150 basis points between spring 2014 and summer 2016. It has to be taken also into consideration that the main policy rate in Poland was lowered by 100 basis points between March 2014 and June 2016 while the Hungarian interest rate cut amounted to 170 basis points during the same period of time. If we subtract that difference we have a decrease of 50-80 basis points in the long end of the yield curve which can be essentially related to the Hungary-specific Self-financing programme.

Figure 10: Polish and Hungarian government bond market benchmark yields



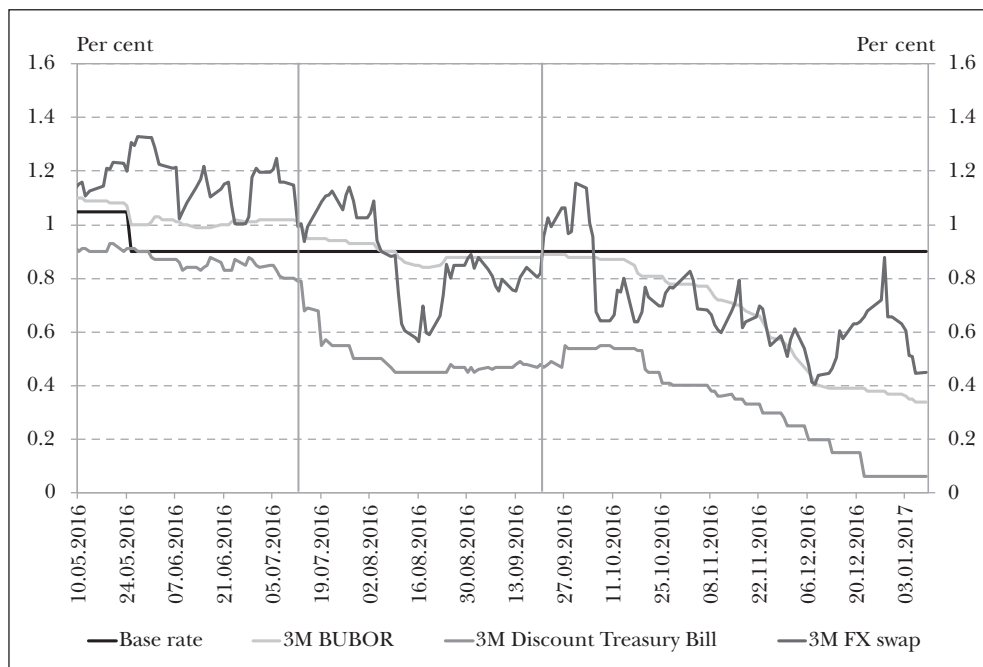
Source: Thomson Reuters Datastream, ÁKK

From an oither point of view we can accept that the Self-Financing Programme contributed to the decline in bond yields directly through the transformation of the operational framework of monetary policy and indirectly by moderating risks. According to the regression of Csávás–Kollarik (2016), the total effect of the Self-Financing Programme on yields between the announcement of the Programme and Summer 2016 could have been as high as 75–90 basis points. Meanwhile, the base rate cuts amounted to 170 basis points (from 2.6 per cent to 0.9 per cent); in other words, the Self-Financing Programme supplemented the yield-effect of central bank interest rate cuts with a magnitude of one half of their effect.

If we consider the cap system introduced in July 2016 as an operational framework partly supporting the Self-Financing Programme²³, it is worth to assess the impact of these measures on the monetary conditions.

As a result of the changing central bank instruments, the introduction of the cap system and the banking sector adjustment, relevant yields declined by 45–55 basis points in the main markets until the end of 2016.

Figure 11: Money market rates in the second half of 2016



Source: MNB, Bloomberg

Following the announcement on 12 July 2016 about the limitation of banks' access to the three-month deposit, the yield on three-month discount treasury bills declined by 30–35 basis, while the three-month BUBOR fell from 1 per cent to a level persistently below the base rate. Following the limited tenders in October, November and December 2016, a further decline of yields took place. As a result, in January 2017 the three-month BUBOR and FX swap yields fell well below the base rate, to around 0,3–0,4 per cent. Compared to July, the three-month discount Treasury bill decreased by some 50–70 basis points.

CONCLUSION

The global financial crisis brought into focus the external vulnerability of the Hungarian economy. For that reason Hungary identified the reduction of external exposure as a strategic objective. The self-financing concept – which is based on a mutual coop-

eration between the MNB, ÁKK and banks and does not include any mandatory regulation – decreases the external vulnerability by facilitating the reduction of foreign currency and external debt, through the refinancing of maturing foreign currency debt using local currency issuances.

The Self-Financing Programme affected all elements of the central bank toolkit while also supplementing the MNB's instruments by an unconventional element, the conditional central bank interest rate swap. The reform of the monetary policy instruments between 2014 and 2016 crowded bank liquidity out of the central bank and channelled it into the market of eligible collateral securities.

Banks have adjusted to the transformation of monetary policy instruments by downsizing their sterilisation portfolios and by increasing their holdings of securities eligible as collateral. This enabled the government to refinance its foreign currency debt with forint issues and to reduce gross external debt along with the foreign currency debt ratio. All these led to a significant reduction in the external vulnerability of the whole Hungarian economy between 2014 and 2016.

The Self-Financing Programme contributed effectively to the improvement in the external perception of the Hungarian economy. The Self-Financing Programme and the additional modifications to the central bank instruments were received positively by numerous international investors and international organisations. In their analyses, institutions primarily emphasised Hungary's reduced reliance on non-resident investors, improved resilience to external shocks, the favourable restructuring of Hungary's debt profile and the strengthening of internal financing. The improvement in external balance achieved as a result of the Self-Financing Programme played a key role in the upgrade of Hungary's debt rating into the investment grade category.

During the period 2014–2016 instead of non-residents, the domestic banking sector became the largest holding sector in the market of HUF denominated government securities. Through banks' increased demand for liquid securities, the foreign currency debt repaid by the Hungarian government from forint issues amounted to EUR 11 billion in 2014–2016, and accordingly, Hungary's external vulnerability declined. Compared to 42 per cent in March 2014, the foreign currency debt ratio dropped to around 25 per cent in 2016. Gross external government debt dropped from 50 per cent to nearly 40 per cent of GDP.

Concerning the effects of the Self-Financing Programme on monetary conditions in Hungary, the results are also impressive. The downward shift in long-term bond yields has been stronger for all maturities than that of Polish yields since the announcement of the Programme. The yield-impact of the Self-Financing Programme could be 75–90 basis points which makes that the Programme supplemented the yield-effect of central bank interest rate cuts with a magnitude of one half of their effect. Supplementing the easing cycles of the MNB, the Programme generated a decline in both short-term and long-term yields. Over the long term, the Programme supported, overall, the efficient implementation of the monetary policy stance.

The Self-Financing Programme achieved monetary easing while tightening the central bank's balance sheet. While numerous leading central banks managed to ease

monetary conditions only through unprecedented expansions of their balance sheets (i.e. quantitative easing programmes), thanks to the Self-Financing Programme, the MNB achieved this goal through a contraction of its balance sheet. The contraction of the MNB's balance sheet reduced the costs associated with holding reserves, and the MNB edged closer to the conditions of a potentially more efficient, liquidity-providing monetary policy.

NOTES

- ¹ This study is partly a refreshed résumé of the volume of studies “The first two years of the Self-Financing Programme” (2016) and also includes elements from other relevant publications of the Magyar Nemzeti Bank.
- ² For a more detailed description see Matolcsy, 2015.
- ³ “The primary objective of the MNB shall be to achieve and maintain price stability. Without prejudice to its primary objective, the MNB shall support the maintenance of the stability of the financial intermediary system, the enhancement of its resilience and its sustainable contribution to economic growth; furthermore, the MNB shall support the economic policy of the government using the instruments at its disposal.” Article 3 of Act CXXXIX of 2013 on the Magyar Nemzeti Bank.
- ⁴ It is not only a specificity of Hungarian securities markets, but also of other emerging economies in the European Union, where the majority of the eligible collaterals are government securities.
- ⁵ Consistent with international practice, the Guidotti indicator – a measure quantifying the country's short-term external debt – is considered by the MNB to be the most important reserve strategy indicator. In addition, it considers other indicators preferred by investors as appropriate in assessing the adequacy of the reserves and identifying the relevant risks (Csávás, 2015).
- ⁶ Regarding the communication related to the Self-Financing programme, government securities were often used by the MNB as synonyms of eligible assets; however, the aim of simplifying the communication for public was to facilitate the explanation and the transparency of central bank decisions.
- ⁷ Improving Hungary's debt profile. Background material. <https://www.mnb.hu/letoltes/banks-can-contribute-to-hungary-s-self-financing-through-government-security-purchases-background-material.pdf>.
- ⁸ It is important to highlight that in case of the IRS there is no distinction between the eligible assets, the same incentive is provided to any of these assets.
- ⁹ The year 2016 was an important milestone for the whole Self-Financing programme, justifying the investigation of the programme from a strategic point of view, particularly concerning the further necessity of the IRS facility. That assessment was made in July 2016 and as a result of that investigation the conditional IRS tenders of the MNB were terminated. The following results justified the termination of the IRS tenders:
 - The external vulnerability of the country declined significantly. By the end of March 2016 the ratio of FX debt to gross government debt declined from 50 to around 30 per cent already.
 - The MNB's balance sheet and sterilisation stock reduced. The MNB's balance sheet and sterilisation stock reduced significantly resulting a remarkable saving not only to the MNB but to the whole Hungarian economy.
 - The demand for IRS facility decreased after two intensive years. The demand for the central bank interest rate swap (IRS) facility was intensive in 2014–2016, the IRS stock exceeds the HUF 1500 billion. Banks undertook to increase their stock of securities eligible as collaterals by that amount which stabilises efficiently the market for liquid securities. During the spring of 2016 the demand of banks at the IRS tenders reduced which means that the value added of the instrument decreased.
 - The overhaul of the monetary policy toolkit related to the Self-Financing programme was largely completed by spring 2016. By the termination of the two-week deposit by the end of April 2016 the main reason of the introduction of the conditional IRS disappeared (the IRS was introduced to facilitate the shift of banks from the two-week instrument of the MNB to longer maturities).The MNB held the last central bank IRS tender – an iconic element of the Self-Financing Programme

– on 7 July 2016. Termination of the instrument does not imply that the goals of the self-financing concept, i.e. the reduction of foreign currency debt and external vulnerability, are rejected. This is confirmed by the fact that the MNB reduced the frequency of the three-month deposit instrument from August 2016 and imposed a quantity restriction on the instrument from October 2016, thereby supporting the Self-Financing Programme while stimulating lending.

¹⁰ Concerning the complementary instruments see Kolozsi–Hoffmann, 2016a.

¹¹ Kolozsi, 2014.

¹² Nagy–Palotai, 2015.

¹³ Two-week loans were replaced by one-week loans and a three-month loan was introduced to replace the six-month loan.

¹⁴ Varga, 2010.

¹⁵ The reserve ratio was lowered from 2 to 1 per cent in December 2016, all other elements of the system remaining unchanged. The modification of the minimum reserve system supports the effectiveness of the new operational framework of the Hungarian monetary policy introduced in Summer and Autumn 2016 and especially the quantitative limitation of the three-month deposit facility. In its long-term strategy, the MNB committed itself to endeavour to harmonise its minimum reserve system with that of the ECB prescribing uniform reserve requirement for all credit institutions. Apart from some technical questions the Hungarian minimum reserve system is fully in line with the ECB's practice after the shift to the 1 per cent reserve ratio.

¹⁶ Nagy, 2016.

¹⁷ Improving the BUBOR market, which commenced at the MNB's initiative in the spring of 2016, was an inevitable prerequisite of the decline in interbank yields. Due to the introduction of the mandatory price quotation system, banks' limits against each other have significantly increased, market turnover has notably risen, and the information content of BUBOR has improved.

¹⁸ From April 2016, the MNB raised the liquidity coverage ratio (LCR) requirement imposed on banks to 100 per cent. This step was implemented outside of the scope of the Self-Financing Programme.

¹⁹ Even if between March 2014 and June 2016 (the termination of IRS tenders), the most dynamic increase in banks' eligible assets could be detected in corporate and other bonds whose stock increased more than sixfold, and the total stock of corporate, other bonds and mortgage bonds amounted to about 12 per cent of the eligible assets.

²⁰ SME loans started to increase dynamically in 2016. In September 2016, the annual growth rate of the total corporate lending of credit institutions was 1.8 per cent. After adjustment for the portfolio separation implemented within the framework of the resolution of MKB Bank, the growth rate amounted to 3.4 per cent. This expansion primarily reflected the increase in HUF-denominated loans. On a transaction basis, SME loans increased by 6 per cent in an annual comparison. The annual growth rate of the outstanding loans of the SME sector including the self-employed came to 7.3 per cent in the third quarter of 2016. The credit institution sector's household loan portfolio increased by HUF 37 billion as a result of loan transactions. Since the end of 2009, this was the first time that an increase was observed in the loan portfolio on a quarterly basis. The expansion of household loans outstanding is mainly affected by growth in loans granted to self-employers. The volume of new loan contracts increased by 43 per cent in an annual comparison and as part of this, housing loan output increased by 48 per cent over the past one year. Source: MNB, 2016).

²¹ For more details see MNB, 2017.

²² A ± 1 percentage point tolerance band has been designated around the inflation target in 2015.

²³ If banks rechannel crowded-out liquidity to the government securities market, the external vulnerability of the country decreases in accordance with the spirit of the Self-Financing Programme, which also means a major improvement and progress for the whole economy. In addition, the ensuing decline in yields results in interest savings for the budget.

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