



The new liquidity measurement model developed by the Hungarian Central Bank during the financial crisis

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Deputy Governor

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MAGYAR NEMZETI BANK

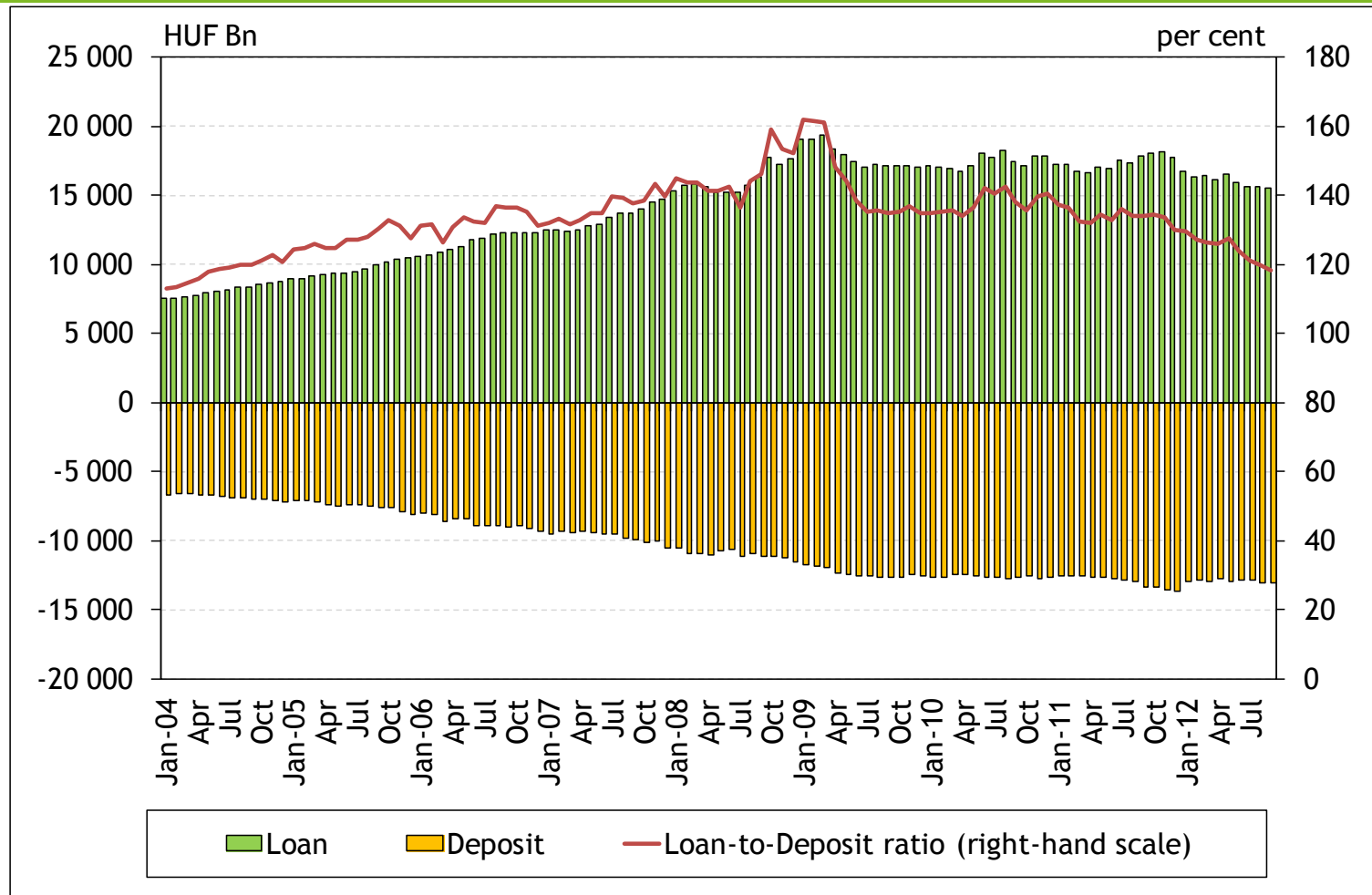


Content

- **Liquidity** and measurement prior to the crisis
- New measures and new data collection during the crisis
- New liquidity rules and new database for the future

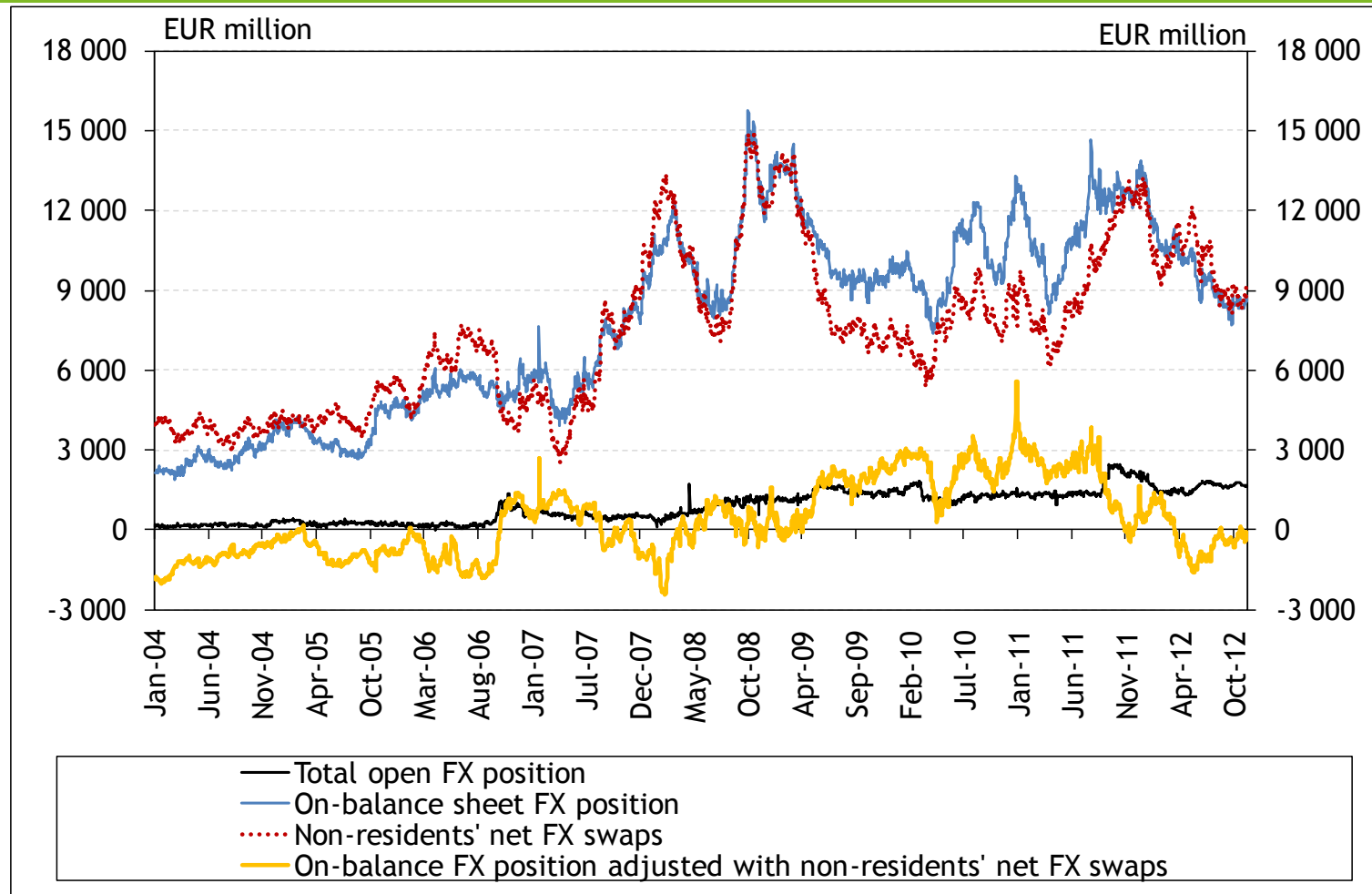


Funding liquidity: L/D ratio, a special leverage



Source: MNB.

Funding liquidity: fx mismatch



Source: MNB.



Liquidity monitoring tools prior to the crisis

D01: Daily operative report on the changes of FX position of credit institution

- Daily FX balance-sheet of banks, specialised credit institutions and EEA branches in Hungary
- It contains all spot, forward, futures, options, FX swap and CCIRS transactions
- Data come from both banks' accounting and risk management system

L09: Daily Balance-sheet report

- It shows major balance-sheet items by denomination
- Data come from banks' accounting system
- Banks' obligation to submit data is based on designation
- Last data collection was in 2006, after that no bank was designated

F01: Monthly report of the Supervisory Balance-sheet

- It shows major liquid assets, but only on a monthly basis
- Data come from banks' accounting system

There were structural liquidity surplus in the Hungarian banking system before the financial crisis

There was no liquidity regulation



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Liquidity crisis: 2008 October

Increasing global risk aversion

Increasing tough terms of getting FX liquidity of domestic banking sector

Introduction of FX swap tenders: O/N, 3-month, 6-month, in EUR and CHF since 2008

Selling government securities of non-resident participants

Purchases on the secondary government securities market based on agreement with banks and institutional investors

Excess demand for HUF liquidity

Broadening the scope of eligible collaterals, introducing 2-week and 6-month covered loans and decreasing reserve ratio

Illiquidity of government securities market

LoLR tools are also available



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Data collection was complemented with new requirements in October 2008

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Both AL1 and AL2 reports were ordered by the HFSA, but banks provided these data to the MNB on a gentlemen agreement basis until January 2010. From that time MNB ordered both reports on its own right.



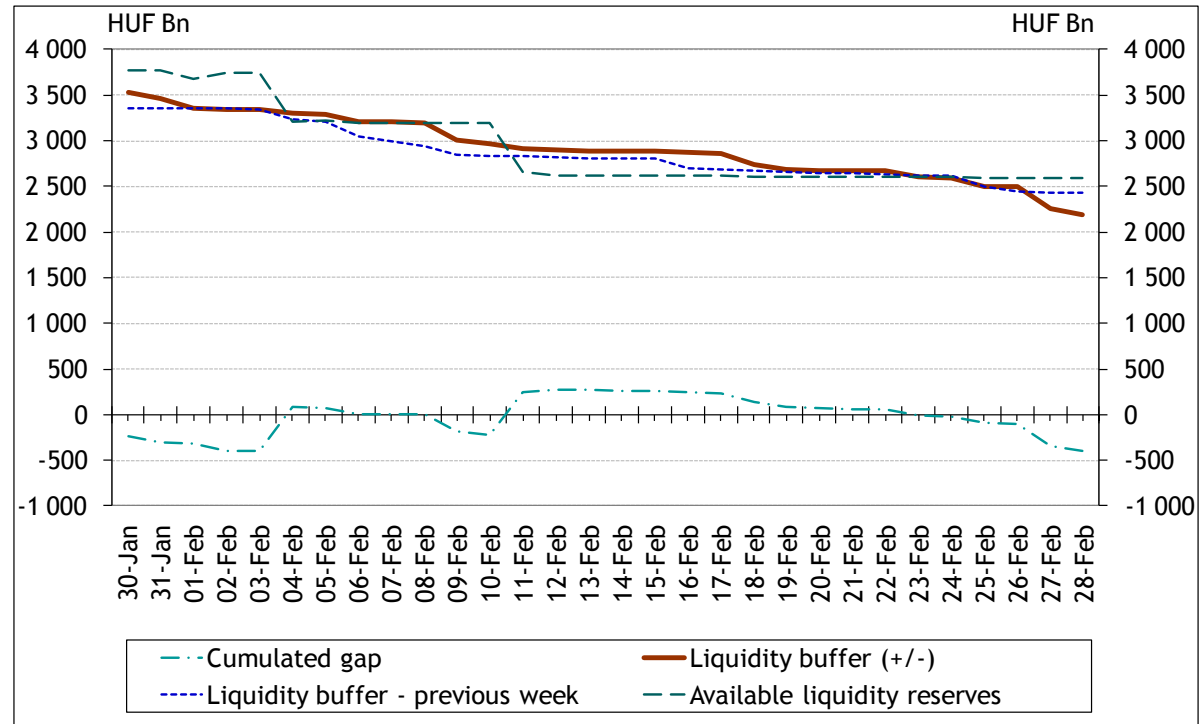
Monitoring tools were developed based on these new daily data

Liquidity position

Maturing on-
balance sheet
liabilities

FX swap exposure

30-day liquidity buffer of major banks



Note: data are also available for individual banks.

Source: MNB.

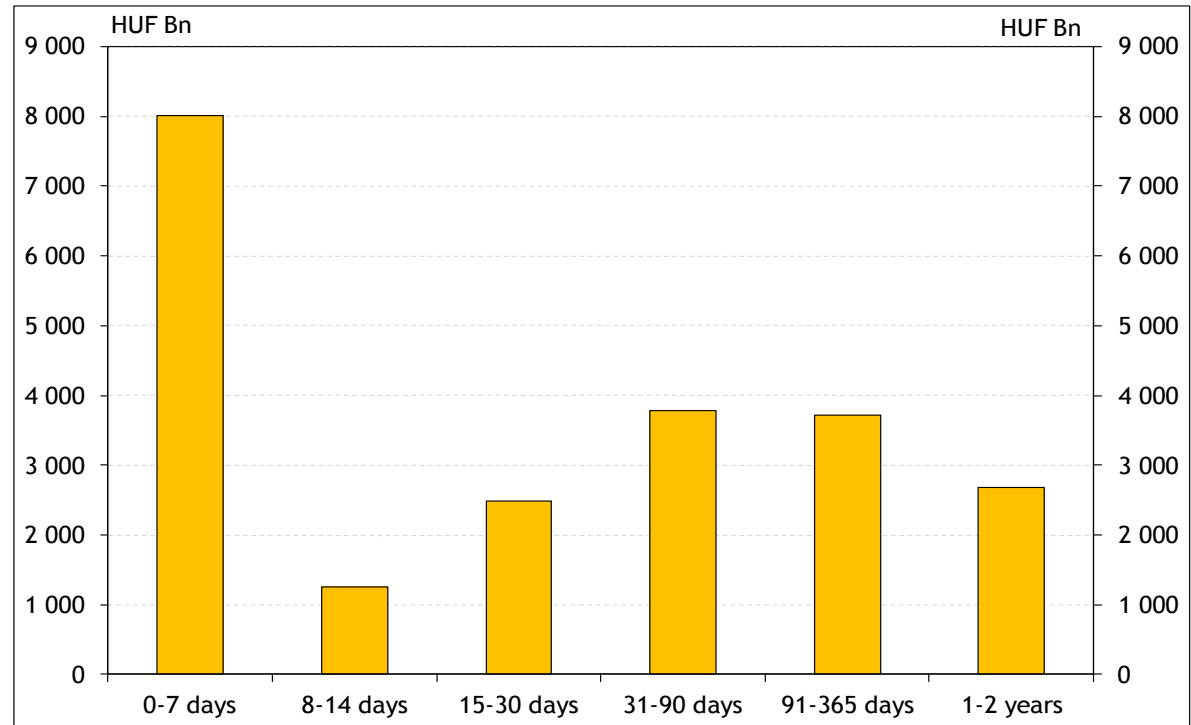
Monitoring tools were developed based on these new daily data

Liquidity position

Maturing on-
balance sheet
liabilities

FX swap exposure

Maturing on-balance sheet liabilities in the banking sector



Note: data are also available for individual banks.

Source: MNB.



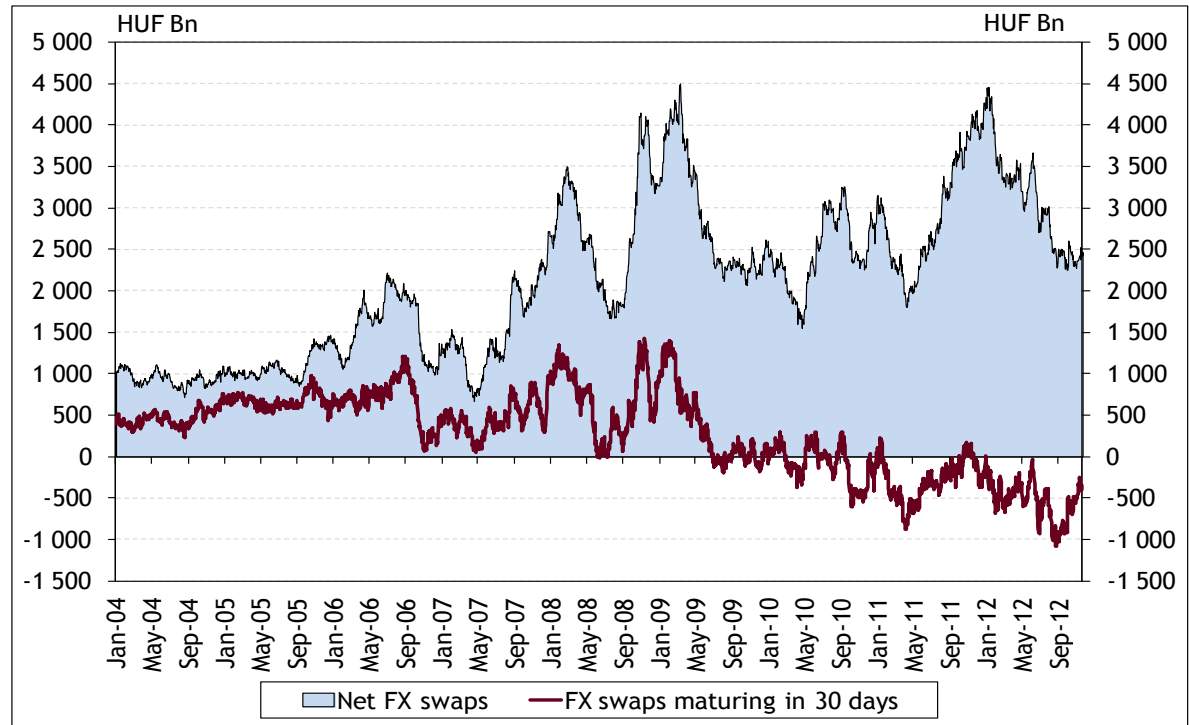
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Liquidity position

Maturing on-
balance sheet
liabilities

FX swap exposure

FX swap exposure of the banking sector



Note: data are also available for individual banks.

Source: MNB.



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Liquidity rules of banks' short-term liquidity position

Liquidity position: the 30-day forward-looking cumulated gap + liquidity reserve available in 30 days

Cumulated gap:

treasury financing surplus (or deficit, if negative) calculated on the basis of the static maturity structure of cash-flow

Available liquidity reserve:

FX nostro account + disposable MNB-eligible securities + (settlement account current balance - average settlement account holding requirement during maintenance period)

Minimum regulatory level of the liquidity surplus from January 2012

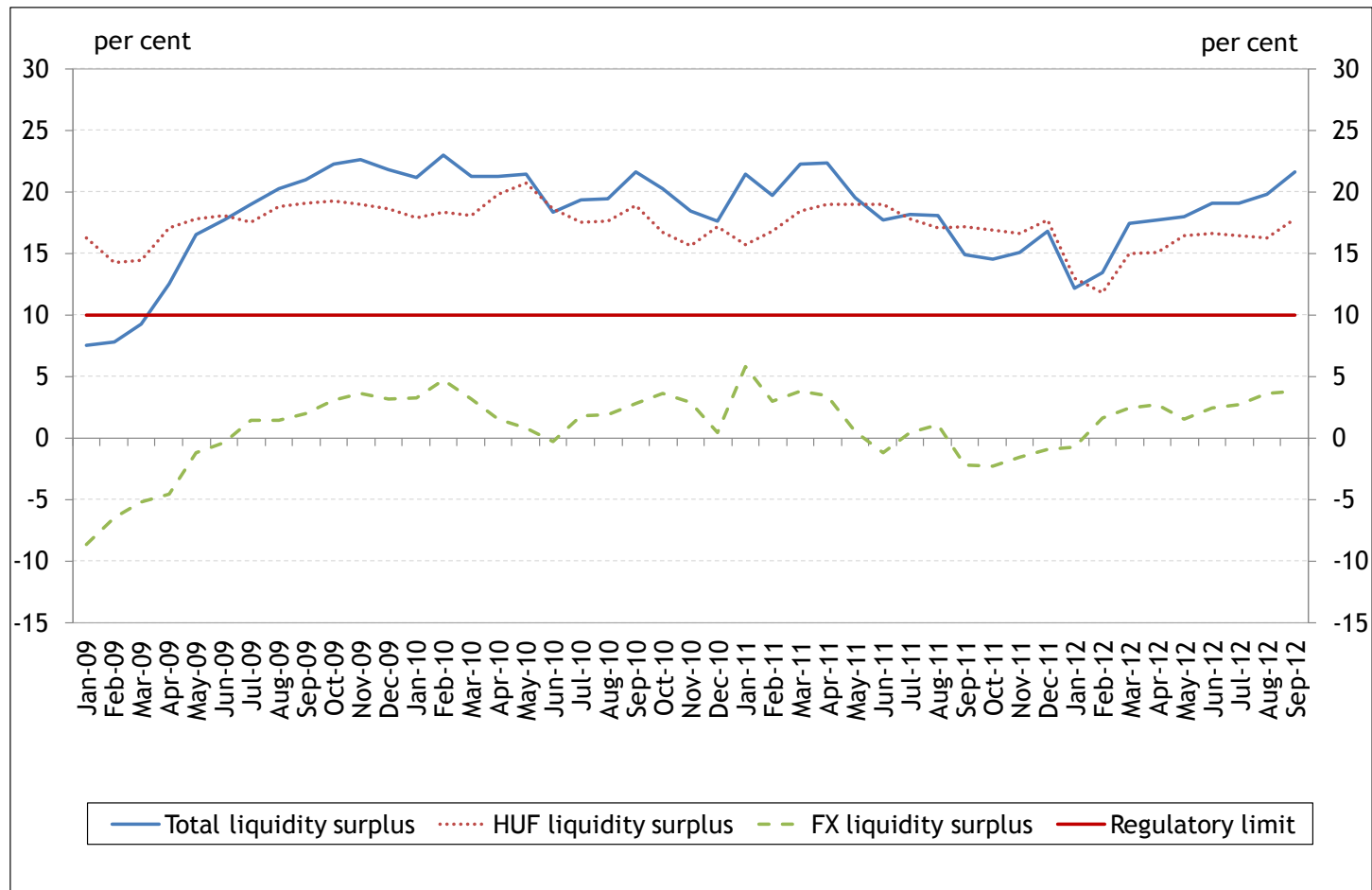
Balance-sheet Coverage Ratio:
10 percent of balance sheet total

or

Deposit Coverage Ratio:
20 percent of total corporate and household deposits



Liquidity surplus as a percentage of balance-sheet total



Source: MNB.

Liquidity rules: FX Funding Adequacy Ratio (FFAR)

FFAR: the ratio of the sum of stable FX funds and long-term net FX swaps to the weighted sum of FX assets to be financed.

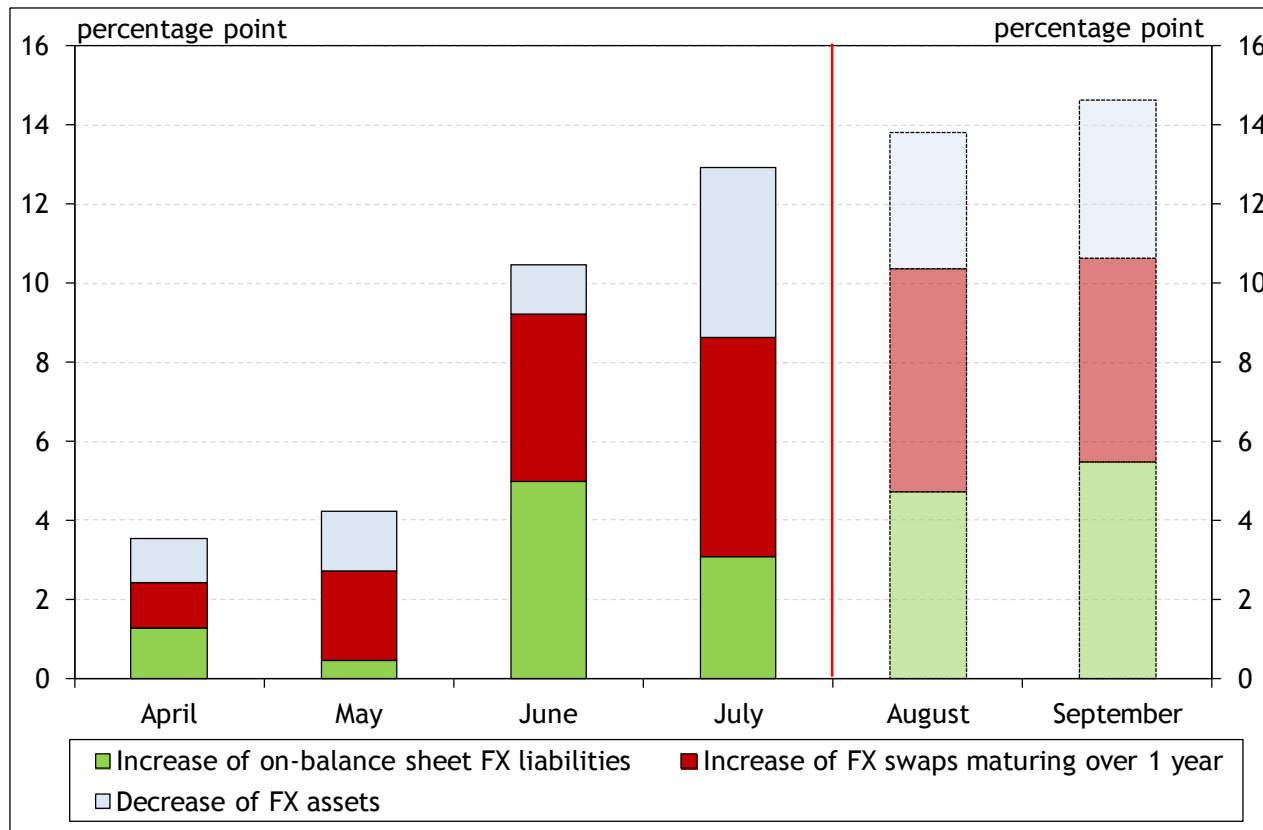
GOAL: to simultaneously reduce maturity mismatch in both on and off balance sheet FX position

$$\begin{array}{c} \text{Stable FX Funding} \\ \hline \text{Long term net FX} \\ \text{swaps} \end{array} / \begin{array}{c} \text{FX assets to be} \\ \text{funded} \end{array} = 65\% \quad \begin{array}{c} \text{Effective} \\ \text{from 1 July} \\ \text{2012} \end{array}$$



Major part of the adjustment via long-term FX swaps

*Decomposition of the change in the FFAR of the banking sector
(exchange rate adjusted, change calculated since end-March)*



Source: MNB.

Monitoring of newly introduced liquidity rules amounted to modify an existing report and to introduce a new one

D01: Daily operative report on the changes of FX position of credit institution

- Daily FX balance-sheet of banks, specialised credit institutions and EEA branches in Hungary of the same type
- It contains all spot, forward, futures, options, FX swap and CCIRS transactions
- Data come from both banks' accounting and risk management system

AL1: Daily Balance-sheet

- This is a revision of the old report L09
- Slight modifications were developed together with the HFSA
- At the beginning of the crisis, majority of the financial institutions was designated to submit data, later it was restricted to major banks

AL2: Daily cash-flow report

- Slightly modified: it contains both Balance-sheet Coverage Ratio and Deposit Coverage Ratio

**Monitoring of short-term liquidity rules is based on AL2
From January 2012**

F01: Monthly report of the Supervisory Balance-sheet

- It shows major liquid assets, but only on a monthly basis
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What risks are not addressed by the newly introduced rules?

Short-term liquidity indicators

FFAR

Sufficient liquidity buffer under normal market environment

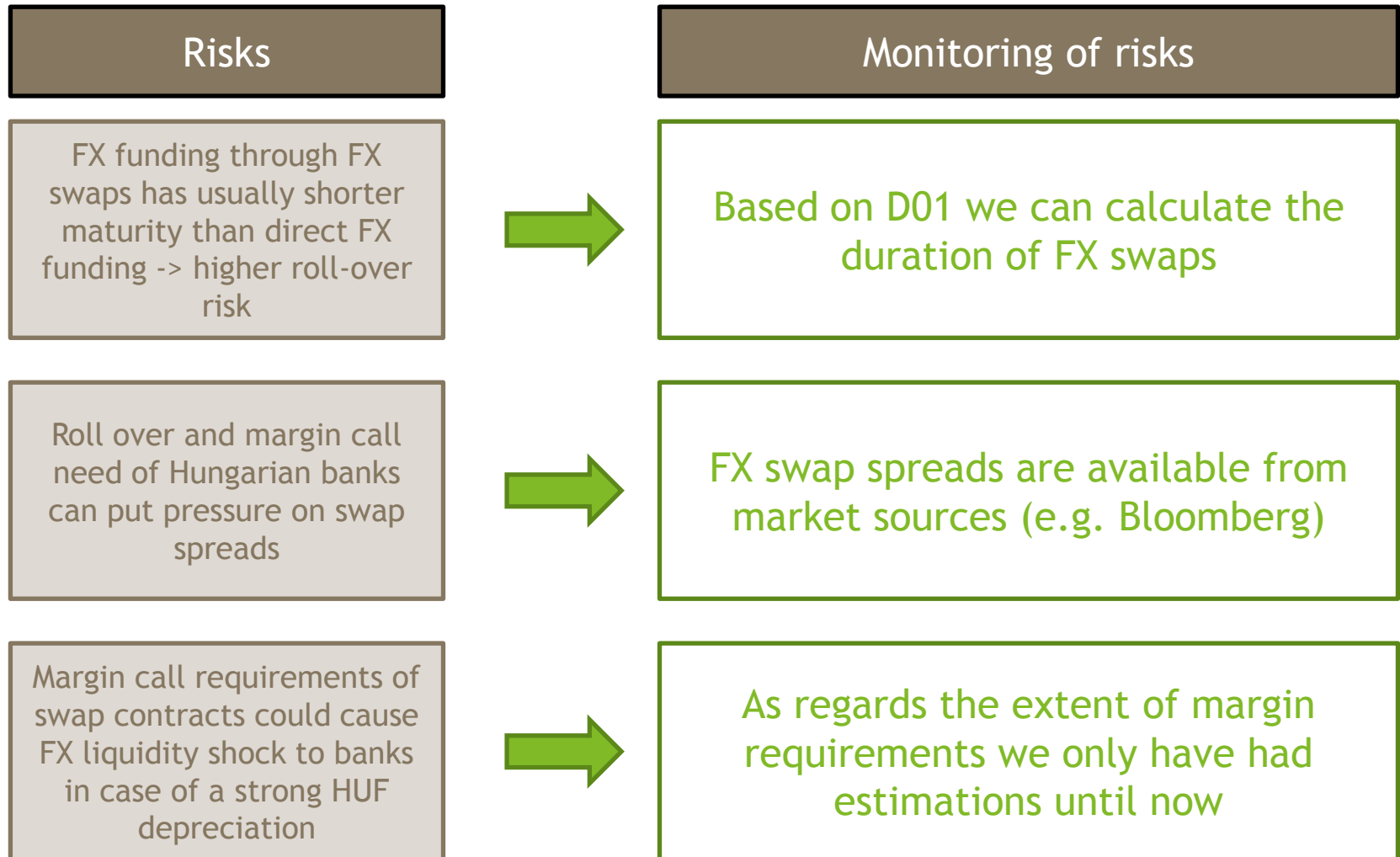
Reducing maturity mismatch in the FX position

None of them handles:

RISKS STEMMING FROM THE HIGH FX SWAP EXPOSURE



What are the risks of the high volume of FX swaps and how can we monitor the build-up of these risks?



New database for the future

D01: Daily operative report on the changes of FX position of credit institution

- Balance of margin accounts has to be reported
- Those derivatives to which margin requirement belongs have to be flagged

From January 2013

AL1: Daily Balance-sheet

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AL2: Daily cash-flow report

- Slightly modified: it contains both Balance-sheet Coverage Ratio and Deposit Coverage Ratio

Monitoring of short-term liquidity rules is based on AL2

From January 2012

AL5: Monthly Report on the FX Funding Adequacy Ratio

- Based on banks' accounting and risk management system
- Developed together with the HFSA
- Both regulatory authority ordered banks to submit the report

Monitoring of long-term liquidity rule (FFAR) is based on AL5

From March 2012

F01: Monthly report of the Supervisory Balance-sheet

- It shows major liquid assets, but only on a monthly basis
- Data come from banks' accounting system

