

Dániel Homolya¹, Melinda Lakatos, Róbert Mátrai, Judit Páles and György Pulai: Limit setting practices of banks in Hungary: Focus on counterparty limits*

During the financial and economic crisis, non-price type restrictive factors came to the fore in financial markets as well; these mainly consist of limits and margin requirements. Specific relevant signs were observed in the domestic financial markets in late 2011 and early 2012: following the downgrade of Hungarian sovereign debt to the non-investment grade category, the average interest rate on overnight unsecured interbank forint money market transactions (HUFONIA) left the interest rate corridor for a short time as a result of the constraints on limits among participants and their limits set to the MNB, and recourse to central bank swap facilities surged. This article presents the findings of a survey² examining the limit setting practices of the most important banks in the Hungarian financial markets and an analysis of market data relevant from the aspect of limits. All of this is important in terms of the analysis of the efficiency of the interest rate transmission mechanism and of central bank instruments as well. Limit amounts are mainly influenced by the counterparty's (or its country's) external credit rating, financial indicators and CDS spreads. The banks surveyed perceive counterparty limits to be the most restrictive. In recent years, however, maturity limits have also appeared, in addition to limit amounts. In the interbank unsecured money market, the tightening of limits was reflected in a decline in daily turnover and a shortening of maturity, while in the currency swap market the shortening of maturities was observed only in the more turbulent period, as a result of the increasingly widespread use of margin requirements and the introduction of the foreign exchange funding adequacy ratio (FFAR).

METHODOLOGICAL FRAMEWORK OF THE SURVEY

During the analysis of the financial and economic crisis that started some years ago, non-price factors (limits, margin requirement agreements, etc.) increasingly came to the fore, in addition to price factors. During the market tensions emerging after the downgrade of Hungarian sovereign debt to the non-investment category in late 2011 and early 2012, not only the price factors deteriorated, but the limits consistent with the new rating category and set for the Hungarian sovereign, the central bank and market

participants also became restrictive at certain credit institutions.

Although we had discussed issues related to limit setting and limits applied in the market at our Market Intelligence meetings³ led earlier by the MNB's Financial Stability unit, we considered it important to analyse this topic within the framework of a targeted survey as well. The current survey was motivated by the intention to obtain a more precise picture of limit setting practices, which have been growing considerably stricter since the outbreak of the crisis, according to both market data and anecdotal information.

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

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² We would like to thank the bank experts who participated in our survey and participants in the discussion within the MNB for their valuable advice.

³ Regular discussions with market participants constitute an important part of the international practice related to the preparation and corroboration of central bank decisions. The MNB launched its Market Intelligence practice, which aims to learn about banks' comprehensive plans and expectations, in 2008. Within the Market Intelligence practice, the MNB learnt about banks' expectations for individual years through expert questionnaires and meetings with senior managers.

All of this is important in terms of the efficiency of the interest rate transmission mechanism and of central bank instruments as well. Accordingly, in August and September 2012 we forwarded our questionnaire to 12 banks operating in Hungary and conducted interviews with them. The sample surveyed included institutions with domestic management and no strategic ownership, domestic subsidiaries of foreign bank groups and foreign banks' domestic branches which are important in terms of financial markets. Therefore, by connecting the findings of the survey to available market transaction data, we can obtain a comprehensive picture of recent years' changes in limit setting relevant from the aspect of the Hungarian banking sector.⁴

Our questionnaire included questions regarding the organisational framework and features of banks' own limit setting practices and the factors influencing such practices, the presumed determinants of the limits set for the given bank by counterparties as well as the effects of recent years' market events in terms of changes to limit management. Personal interviews with treasury business and risk management experts allowed the formulation of explanatory questions and the clarification of which limit types are the most restrictive and how market events influence these. The application of qualitative survey techniques was justified as banks treat their respective limit systems as extremely sensitive information.

REGULATING THE LIMIT SETTING PRACTICES IN THE HUNGARIAN BANKING SECTOR

In the examination of the limits applied by Hungarian commercial banks, the mapping of the decision-making mechanisms related to the limits and the methodologies providing the environment of limit setting were considered as starting points. In addition to gathering general information, the importance of such mechanisms and methodologies is underlined by the fact that the committees that decide on the methods of setting the limits and on the adoption of specific limit levels strongly influence the limit setting practices of the banks participating in the survey. In connection with the applied methodologies, our questions aimed at understanding the limit setting principles valid for transactions as well as the characteristics of limit revisions. Regarding limit setting practices, the responses concerning the possibility and treatment of exceeding the limits also

facilitated comprehension of the functioning of the limit systems, which constitute the framework of commercial banks' activities.

Decision-making mechanisms related to limits: typically centralised decisions

In line with our preliminary expectations, the role of a given bank within a banking group is key in terms of decision-making related to limits. For proper orientation in analysing the limits applied by banks, we had to assess the decision-making mechanisms at the level of individual institutions and had to understand the authorisation levels, powers and competency.

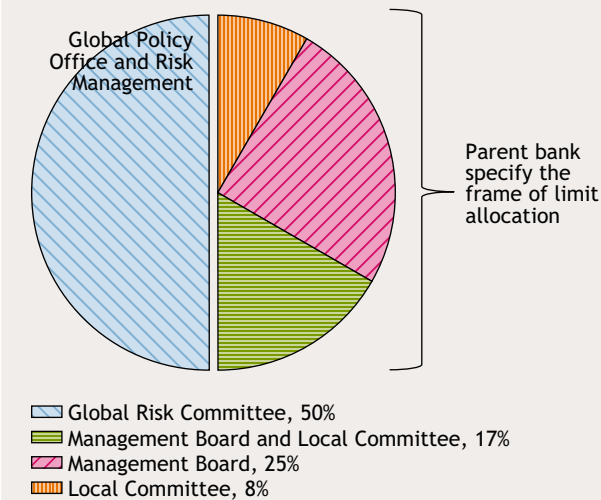
Two typical types of banks were outlined by the responses relating to the decision-making bodies: banks conducting global risk management covering the whole banking group and institutions that operate on the basis of group-level guiding principles within the framework set up by the parent bank.

Where there is *global risk management*, dedicated bodies working at the group level are entitled to set limits in every case. Risk management policy at these banks is centrally determined; the methodology of risk management and the setting of specific limit levels are the responsibility of banking group level bodies. Subsidiaries and branches do not have any direct influence on the formulation of the methodology; most of the limits they receive are pre-determined.

In the event that the *parent bank provides a regulatory and methodological framework*, the decision-making levels show a more varied picture, and typically multi-level decision-making is implemented. The parent bank plays a less dominant role. Although it declares the regulatory and limit setting frameworks, within those bounds it provides more leeway at the regional and local levels. In this case, banks determine the decision-making levels depending on the weight represented by the given limit, in line with the strategic and business policy capabilities as well as the owner's ability to take risks. Local decision-making bodies (board of directors and local committees: asset/liability committee, credit and limit committees) are competent in decisions of lesser importance, mostly concerning local issues. At the regional level, business branch-specific

⁴ It is worth calling attention to the fact that reviews concerning limit setting practices appear relatively rarely in international literature as well (although there are exceptions; see e.g. Sungard, 2008), and to date we have not encountered any survey regarding the Hungarian banking sector.

Chart 1
Decision-making bodies at institutions performing global risk management and operating within regulatory frameworks set up at the parent bank level



Source: MNB.

committees decide on more complex issues that concern the bulk of the banking group. The highest-level, strategic limits, which typically apply to the banking group as whole, are set globally.

Global risk management is used at some 50 per cent of the domestic institutions surveyed. In parallel with the parent bank's regulatory framework, independent decision-making mechanisms also exist in the other half of the participating banks (Chart 1).

Irrespective of their bank type, almost all respondents reported that they can apply for limit modifications following a specific procedure, usually with the involvement of several decision-making levels. Moreover, 25 per cent of respondents stated that up to a certain limit amount the local business and risk management organisational units have competence to set the limits or to raise a limit within certain bounds. At the same time, there are banks where initiatives from subsidiary or branch office levels can take place only in specific periods, typically once a year. During the interviews several respondents said that the annual one-off limit revision possibility might reduce the room for manoeuvre of business areas. The tightening of limits becomes apparent when it does not allow for the satisfaction of a business need arising vis-à-vis a potential counterparty. Relationships with counterparties often fail to be established because the parties are able to provide limits to one another only at different times. As unutilised limits are typically lowered during the annual revision, a typical case mentioned several times was that while one of the parties

is setting up the limit enabling the transaction, the other party terminates it. Having a usual, reliable range of counterparties may help to ease these constraints.

Limit setting methodology, limit types applied: focus on counterparty risk

Analysis of bank limits requires the classification of the applied limit types and some knowledge of the methodology of limit setting. In respect of transactions, we asked questions about four typical groups of limits and the types of other limits that cannot be classified into these groups. In line with our expectations, the vast majority of the banks participating in the survey apply the limit types given by us (counterparty limit, country risk limit, settlement limit and transaction type limit).

Limit types indicated by banks (with the ratios of mentioning in brackets)

- counterparty limit (100%)
- country risk limit (100%)
- settlement limit (100%)
- transaction type limit (75%)
- other limit (33%)

Of the limit types indicated by individual banks, without exception, all participants set counterparty limits, and based on the responses and interviews, this limit type can be considered the most restrictive in terms of transactions. The size of the allocated counterparty limit basically depends on counterparty risk, i.e. the credit risk perception of the counterparty is authoritative. In addition, the banking group's willingness to take risks and the demand of the business area play a significant role. Banks typically give their counterparty limits in absolute value, and the limit is usually determined in the currency corresponding to the parent bank (euro or US dollar) or in forint. If the limit is not forint-denominated, a general clearing rate is used in the course of monitoring. There are considerable differences in counterparty limit methodologies upon the breakdown of limits by entities. Some of the respondents allocate limits to whole banking groups and have free room for manoeuvre for limit utilisation within the banking group. At other banks each counterparty – in extreme cases even the various branch offices – has separate limits. The most general solution is that within the banking group level limit, separate limits are allocated to the legally independent entities on the basis of the credit risk assessment of the entity.

Every bank uses country risk limits as well. However, not everybody considers the limits for the investment target country as determinant. If the general business policy limits

transactions to investment grade countries, the limits regarding the exposure by countries may fall into the background. At the same time, due to the turbulences attributable to the crisis experienced in financial markets, differentiation between investment target countries has intensified. The limit allocated to a country mainly depends on the credit risk rating of the given country, its role in international economy, the bank's ability to take risks and business requirements.

*Settlement limit*⁵ was also mentioned in the responses of all banks. Settlement risk is managed through this limit, which means limiting the exposure that the two payments (of opposite directions) of the transaction are not harmonised in time, and the counterparty may experience liquidity problems or (in a worse case) solvency problems during settlement. Several respondents mentioned that they basically derive the settlement limit from the counterparty limits, and thus the influencing factors that dominate upon the determination of the amounts include, for example, the counterparty's solvency. The respondents usually use risk-reducing settlement techniques for the management of the settlement risk. For example, one of them is the *Delivery versus Payment (DvP)* practice applied in securities transactions.⁶

Compared to the above, the setting of transaction type limits shows a more varied picture. Several banks mentioned the transaction type limit because, for example, the impact of the counterparty limit is different for each transaction. A typical methodology is that banks use weighting in line with the risk of the type of transaction upon calculating the limit. Some respondents stated that there is no typical transaction type limit, and they only make a distinction between permitted financial instruments defined by business policy and forbidden ones. Some banks classify the types of transactions into asset groups (fixed income instruments, derivatives, FX transactions) and allocate separate limits for them. Market and liquidity risks were the most important factors mentioned in connection with the setting of the transaction type limit.

Various types of limits were mentioned in the category of other limits; they are typically used for the management of other risks as independent limits. Limits calculated on the basis of VaR⁷ are often set up for market risk management.

The controlling of the interest rate risk appears separately as well. Liquidity limits serve the purpose of avoiding liquidity problems, and several banks highlighted the limits in the case of open currency position and the pre-settlement⁸ limit regarding pre-settlement risk.

Other limits

- *maturity limit*
- *VaR-based limits*
- *interest rate risk limits*
- *limit for open currency position*
- *liquidity limits*
- *pre-settlement limit*

Several parameters influencing the limit amount appear in the methodology of the various limit types, but time to maturity is a factor that needs to be highlighted separately. The classification of the given transaction according to maturity (tenor) is often an additional factor in the impact of individual limits. Tenor is typical as an independent limit as well, usually the maximum term of transactions, depending on the regulated type of transaction and the counterparty's credit rating.

Limit revision characteristics

In the practice of limit setting, in addition to the limit types applied, we also considered it relevant to analyse the characteristics of the revision procedures related to them, as several conclusions can be drawn from these, for example with regard to reactions to market turbulences. In relation to this subject matter, we asked the participants in the survey about the frequency of the revision of the limit setting methodology and limit levels, about the influence on limit modification in the case of subsidiaries as well as about the possibilities of expanding the limits, including – inter alia – the lending/borrowing of limits.

Limit setting methodology and the frequency of limit level revisions

In the questions about the frequency of limit revisions, we made a distinction between needs for changes in the limit setting methodology and the specific limit levels.

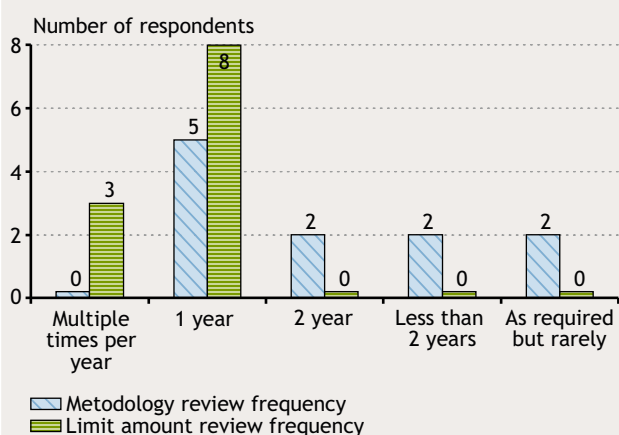
⁵ Settlement risk is an uncertainty stemming from the fact that the system of paying for the values that are the subjects of the transaction does not ensure that the payment order concerning the selling initiated by the bank is executed only if the countervalue has already been paid (the paying agent or the bank itself has already made sure of it).

⁶ For more details, see: BIS (1992).

⁷ VaR is the abbreviation of the expression 'value-at-risk'. For example, the 1-year, 99.9 per cent VaR is the figure that shows the value at which one cannot lose more in a year with a probability of 99.9 per cent.

⁸ Pre-settlement risk stems from the case if following the entry into the transaction, but prior to starting the performance the transaction fails for some reason, and then it has to be entered into again in the market at current prices. The main risk in this case is the shift in market prices.

Chart 2
Frequency of the revision of the limit setting methodology and limit levels by the number of respondents



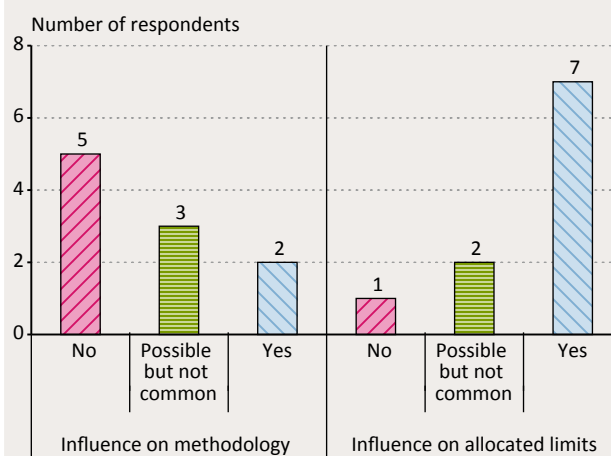
Source: MNB.

Methodological revisions typically do not have a specific schedule; in many cases they are put on the agenda pursuant to supervisory rules, bank directives or as a result of market events. Minor methodological amendments and renewals of related rules/regulations are more frequent; these revisions take place at least every two years. From participants' responses, we came to the conclusion that major methodological changes take place less often and are mainly connected to market crisis related events and the development of risk management techniques.

The revision of specific limit levels is much more regulated than that of the methodology. Banks carry out a comprehensive limit amount checking at least once a year, but some of the respondents do this even more often. While it is not typical, it does occur that the dates and in certain cases the frequencies of revisions are different in the various limit categories (for example, country risk limits are revised more often, on a quarterly basis).

In addition to regular revisions, ad hoc checking of limit levels is also typical. For example, a typical circumstance resulting in an ad hoc check is the deterioration in a counterparty's creditworthiness or market events affecting riskier clients. Revisions related to market turbulence end with limit reductions almost without exception. Demand for limit amendment in a positive direction is usually received from the business area. In cases of business requests to expand limits, banks require corroboration with strong professional arguments and consultation with the risk management organisational unit.

Chart 3
Involvement of affiliate banks in the methodology of limit setting and in limit levels



Source: MNB.

Influence of subsidiaries and branches on limit revisions

One question that also arose in connection with limit revision was how great the influence of domestic players was in the area of limit setting, especially in the case of institutions operating as a subsidiary or branch office of the banking group. From the responses, we can draw the conclusion that methodological issues exclusively belong to the competence of the parent bank; local entities' input is limited, even if theoretically it is possible. In the case of limit levels, however, local banks have more influence, which is reflected, inter alia, in the ad hoc limit modification requests. Several respondents reported that during the annual revision the parent bank asks the opinion of the local business and risk management organisational unit, mainly with regard to domestic counterparts.

One of our questions was whether there were differences within the banking group in terms of the limit system applied. For example, whether there were obvious regional differences in the limits dedicated by the parent bank. The answers reveal that in the vast majority of cases there are no unique, affiliate bank-specific modifying factors, but normative rules are applied.

Judgement and handling of exceeding the limits and lending/borrowing of limits

The limits represent strong constraints at the responding banks, and the possibility of deviation from the limits is

restricted. Breach of limits as a result of negligent transaction is theoretically ruled out in the case of most institutions. Limits are typically exceeded temporarily, in cases of market revaluation or limit reductions. It is mandatory to report such cases, and they are subject to strict judgement by the parent bank or a dedicated committee. There was an institution among the respondents where exceeding the limit is allowed with the consent of local decision-makers (e.g. head of the business area), under pre-determined rules.

Every bank strictly checks the observance of limits. The monitoring function gives a signal not only when the absolute limit is reached, but also warns at certain pre-determined levels (for example, when 90 per cent utilisation of the limit is reached).

According to banks' reports, no fire sales occurred in their practices. There is adequate time interval for closing above-limit exposures originating from market revaluation and limit reductions. In most cases, these assets can be held until maturity, but no new exposure can be undertaken from them.

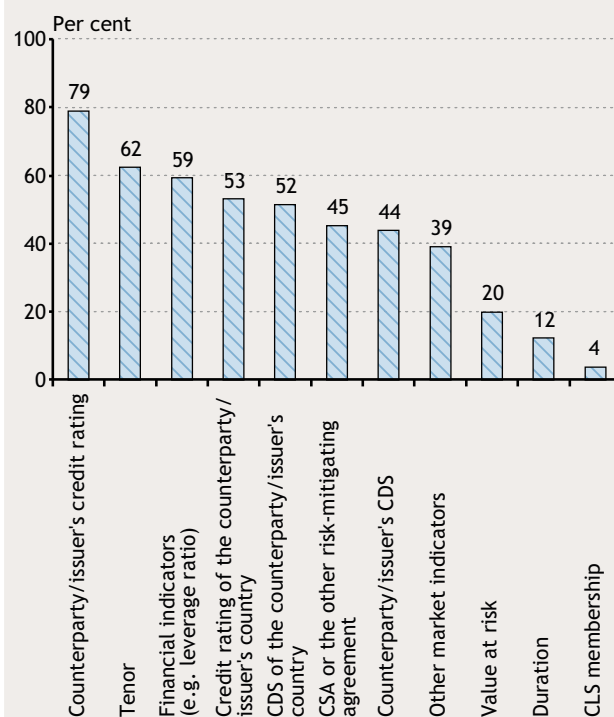
Techniques that ease counterparty limits that might become tight were mentioned during the interviews. Several respondents reported that they are able to expand the strictly allocated limits through the so-called limit lending activity. The essence of this is that subsidiaries and branch offices may lend unutilised limits to one another through the parent bank (or directly in one or two cases) for a pre-determined period of time.

DETERMINANTS OF LIMIT LEVELS – OWN LIMITS VS. LIMITS SET BY NON-RESIDENTS ON DOMESTIC BANKS

Following the survey of the general methodology of limit setting, in the next part of the questionnaire we asked about the factors that influence the fixing of specific limit levels with regard to various money, FX, bond and stock market transactions (10 institutions completed this part of the questionnaire). As shown in Chart 4, based on banks' responses, the most important influencing factor is the credit rating of the counterparty or of the issuer, in the case of securities transactions. In many cases, taking account of the credit rating means the application of a rating system based on an internal methodology elaborated by the bank or banking group, but usually containing numerous elements that are similar to the methodology applied by major credit rating agencies. At about one third of the banks that take into account this factor, the counterparty's or issuer's credit rating appears as a barrier

Chart 4
Ranking of determinants of limit amounts and other types of limits

(ratio of mentions)



Note: The chart presents the roles of individual factors in determining the limit levels on the basis of 13 types of transactions and the responses of 10 banks, i.e. on the basis of a total 130 responses. For a summary of the number of mentions by transaction types, see Annex 1.
Source: MNB.

to transactions as well. Accordingly, these banks cannot enter into transactions with counterparties whose credit rating is below a certain pre-determined level. At the rest of the credit institutions, credit rating is only one component of the factors that affect creditworthiness.

In determining the limit levels, the majority of credit institutions take into account not only the credit rating of the counterparty (or issuer), but also the sovereign credit rating of its country, although often it is not a separate factor, but plays a role in determining the counterparty's credit rating – similarly to the CDS spread of the counterparty (or issuer) or its country. When evaluating creditworthiness and determining limit levels, banks that use internal rating systems usually take into account counterparties' or issuers' various financial indicators as well. Depending on the scope of activity of the assessed financial institution and the availability of data, these financial indicators reflect a varied picture. They usually include indicators concerning the profitability, capitalisation, liquidity and asset quality of the counterparty or issuer. In addition to financial indicators, less than half of the responding banks use other market

indicators in determining the limit levels. Typical indicators are ones determined on the basis of market share, probability of external support, the assessment of the parent company or a characteristic of its economic environment.

Upon completing the questionnaires, most banks indicated maturity as an effective limiting factor in the case of interbank and securities transactions. In the case of a longer-term transaction – in addition to the fact that it burdens the limits for a longer time – the exposure that the bank can undertake may as well decline, even to zero in an extreme case. Several banks reported that as a result of the general distrust that evolved in the unsecured interbank forint market, they have serious difficulties in receiving limits for maturities longer than one week; their limits have practically been reduced to zero on maturities longer than one week.

Based on responding banks' statements, since the outbreak of the crisis the effect of the CSA⁹ and other risk-reducing agreements has appreciated during the setting of limit levels. Almost all credit institutions participating in the survey marked risk-reducing agreements as factors influencing limit levels in the FX forward, FX swap and CIRS¹⁰ markets. During personal conversations, several people said that their counterparties often cannot enter into transactions with them without a CSA agreement. Some banks also named CLS¹¹ membership as a factor influencing limit levels.

In the case of the majority of responding banks, Value at Risk (VaR) and duration do not have an effect on the size of the limits set and do not influence the utilisation of limits. In the case of credit institutions where the VaR is applied in the limit system, it is an influencing factor mainly in the case of FX market transactions, whereas duration is an influencing factor only in bond market transactions.

In the questionnaires, we asked the responding banks what factors they perceived in the case of individual types of transactions as determinants of the setting of limits by their counterparts. It can be stated that the majority of banks have relatively little information about their counterparties' limit setting practices. At best, they have precise information about the level of individual limits applied to them, and even this information usually arises when they encounter limit constraints upon making transactions. Presumably, however, the conduct of non-resident counterparties and domestic institutions is determined by similar factors.

LIMITS VIS-À-VIS THE MNB

The subjects of our survey also included the limits applied to the MNB; the necessity of this was corroborated by the market events of the recent period as well. It was experienced for the first time in the domestic interbank markets on 17 and 18 January 2012 that the average O/N unsecured interbank interest rate (HUFONIA) left the interest rate corridor, which means an effective limit in the case of efficiently functioning interbank markets. Answering our questions, some banks said that at end-2011 and in early 2012, primarily as a result of the downgrades affecting the Hungarian sovereign, their respective parent banks reduced the size of their limits vis-à-vis the MNB, and thus they were compelled to place some of their forint liquidity at interbank forint markets even outside the interest rate corridor. Some banks encountering limit constraints reduced their surplus forint liquidity in the currency swap market, contributing to the deepening of FX swap market tensions in early 2012, which was most spectacularly reflected in an increase in market spreads and a surge in recourse to central bank swap facilities (MNB, 2012).

The great majority of banks participating in the survey apply specified limit levels vis-à-vis the MNB, while some of the banks do not set limits for the MNB or their limits vis-à-vis the MNB are unrestricted or can be expanded within local competence practically without restriction. At the great majority of banks that apply limits to the MNB, minimum reserves are included in the limits vis-à-vis the MNB, in spite of the fact that maintaining minimum reserves is a regulatory requirement. In nearly half of the cases, the limits vis-à-vis the MNB are treated together with the sovereign, while separate limits are set vis-à-vis the Hungarian State and the Magyar Nemzeti Bank in the other half of the cases.

CHANGES EXPERIENCED DURING THE CRISIS

The breaking points identified on the basis of banks' responses were in line with our intuition

Individual banks' responses to the questionnaire confirmed that in terms of the management of counterparty limits the outbreak of the crisis in October 2008, the development of the Greek crisis since early 2010 and the downgrade of Hungarian government debt at end-2011 and in early 2012

⁹ Credit Support Annex.

¹⁰ Cross-currency Interest Rate Swap.

¹¹ Continuous Linked Settlement (for more details, see: MNB, 2001 and Tanai, 2007).

were the most important breaking points. Some institutions added that the start of the subprime mortgage market crisis in the summer of 2007 also had a perceptible impact on the management of counterparty limits. Several credit institutions emphasised that the autumn 2011 announcement of the possibility of early repayments of foreign currency loans at a fixed, preferential exchange rate also narrowed counterparty limits. In addition to the above, the money market turbulence in early 2012 was also reflected in counterparty limit management.

Of the events mentioned above, clearly the October 2008 crisis was considered the most important breaking point, when counterparty limits fell drastically and extremely rapidly (practically immediately in measures considered necessary individually). The most important changes in counterparty limit management were faster reaction than earlier, an increase in the importance of immediate interventions considered necessary on the basis of monitoring activity, the introduction of warning/alert lists and an increase in the role of CSA agreements, which reduce counterparty risk. In addition, the trend towards the clearing of OTC derivative transactions through central counterparties (CCP) – which is partly reflected in regulatory proposals and partly in counterparties’ expectations – is also a significant limiting factor in terms of counterparty limit management.

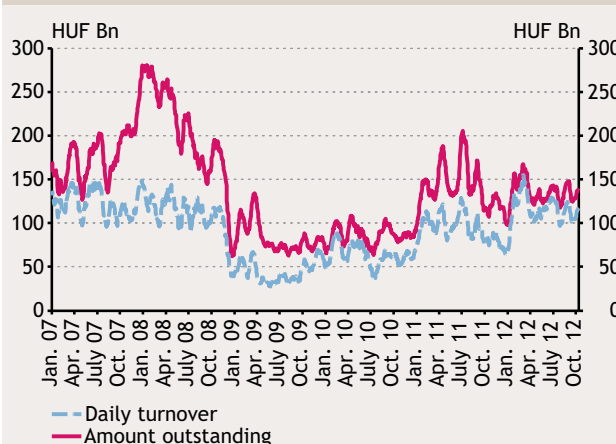
In addition to the written responses to the surveys sent to banks, the impact of the crisis on counterparty limit management was examined on the basis of market data as well (stocks, turnover, number of active participants, number of counterparties, duration) in the unsecured forint interbank market and in the currency swap market. These data typically did not completely reflect the breaking points. This was attributable to factors that in technical terms cannot even appear in the developments in these breaking points (e.g. the cutting of unutilised limits cannot be seen in the actual transactions). The following subchapters contain a more detailed analysis in a breakdown by market.

Unsecured forint interbank market

Following the Lehman bankruptcy, starting from November 2008, the earlier average daily volume of HUF 100-150 billion of extra-banking group transactions fell to one half in the unsecured forint interbank market (hereinafter: depo market) in a few weeks (Chart 5). In parallel with that, the number of banks active in the depo market declined by around one third, while the average monthly number of their counterparties fell to one half (Chart 6). However, the decline in turnover at end-2008 is not exclusively attributable

Chart 5
Daily turnover and amount outstanding in the depo market

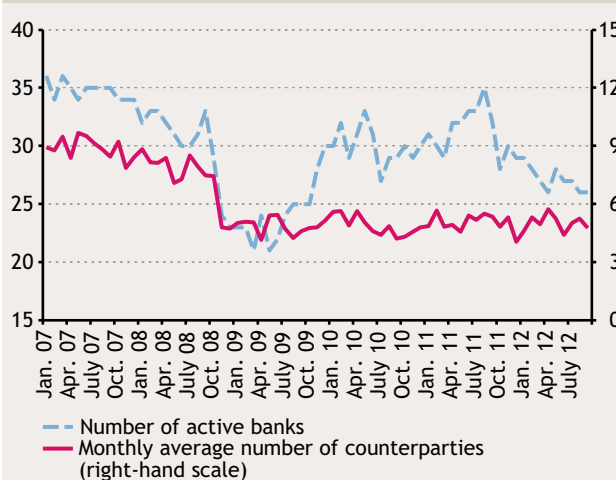
(extra-group transactions, 4-week moving average)



Source: MNB.

Chart 6
Number of active banks and monthly average number of counterparties in the depo market

(placing side, extra-group transactions)



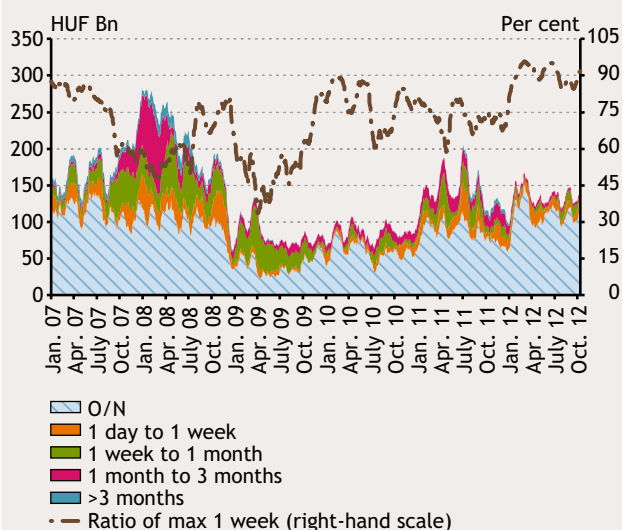
Source: MNB.

to the tightening of limit systems. In addition to the more conservative limit management, the decline in depo market activity is also attributable to the increasing mistrust, which incited banks to manage liquidity in a more cautious manner and to increase their central bank O/N deposits (Molnár, 2010). Meanwhile, instant liquidity buffers, which were swelling as a result, led to a decline in demand in the depo market.

The general mistrust emerging after the Lehman bankruptcy declined only slowly in the markets; until early 2012, turnover in the depo market remained below the level observed prior to November 2008. The next breaking point

Chart 7
Outstanding extra-group depo stock by original maturity

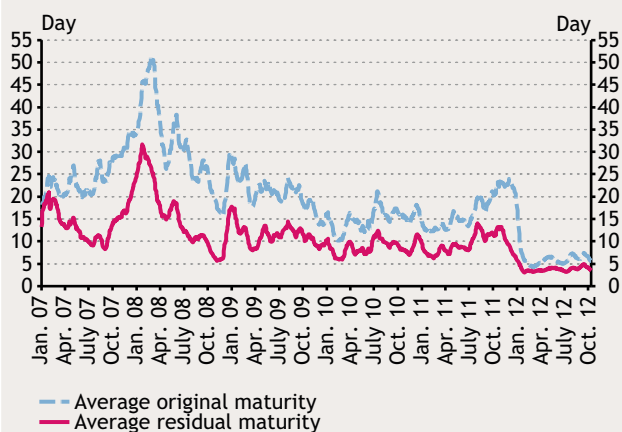
(4-week moving average)



Source: MNB.

Chart 8
Outstanding extra-group depo stock by average original and residual maturities

(4-week moving average)



Source: MNB.

occurred in the depo market at the beginning of 2012. Following the exclusion of the Hungarian sovereign debt from the investment category, against the background of an unchanged depo stock, the daily turnover of the market surged in early 2012, while the maturity of transactions fell considerably. In a few weeks, the average original maturity of the outstanding stock fell to one fifth of its previous level, while its residual maturity fell by two thirds. In parallel with that, within the stock, the ratio of transactions with a maturity of up to one week increased from the earlier level of around 70 per cent to above 90 per cent

(Charts 7 and 8). As banks stated, the reason for the significant shortening of maturity was that at several credit institutions active in interbank markets the maximum maturity of transactions that can be concluded in the depo market was reduced to one week due to risk management considerations.

Examination of the unsecured forint interbank market confirmed the emergence of the major breaking points taking shape on the basis of our intuition and banks' responses. The change in the conduct of banks active in the depo market can clearly be identified in the November 2008 period following the Lehman bankruptcy and in the early 2012 period following the exclusion of Hungarian sovereign debt from the investment category, whereas examining the transactions of depo market participants, direct effects of the unfolding of the Greek crisis since early 2010 cannot be clearly identified.

Looking at individual bank levels, the depo market behaviour of individual banks does not show a uniform picture. Most participants reduced their activities after November 2008. As a result of the tightening of limits, some banks that used to be active in the depo market left it completely, and started to build positions again only years later, with the easing of the effects of the crisis, although the magnitude of these positions is mostly still below the pre-crisis level. There were credit institutions whose deposit volume also declined in November 2008, but their depo market activity returned to earlier levels already at the beginning of 2009.

Currency swap market

In the currency swap market, changes in average residual maturity only partly reflected the tightening of (maturity) limits. The average residual maturity projected for the total currency swap exposure (providing foreign currency liquidity) increased considerably following the outbreak of the crisis. This may be explained by several factors. First, compared to interbank transactions, currency swap transactions can be considered secured instruments: a claim in one currency serves as collateral for a liability in the other currency (Mák and Páles, 2009). Accordingly, it involves a lower counterparty risk than an unsecured interbank loan. Second, the application of CSA agreements became widespread following the crisis: transactions with CSA agreements are lower burdens for counterparty limits. Third, right after the outbreak of the crisis, as a result of strong parent bank commitment, the ratio of intra-group transactions increased in the case of several affiliate banks, and following the outbreak of the October 2008 crisis, parent banks concluded transactions with much longer maturities with domestic subsidiaries and branches than

Chart 9
Average residual maturities by types of counterparties

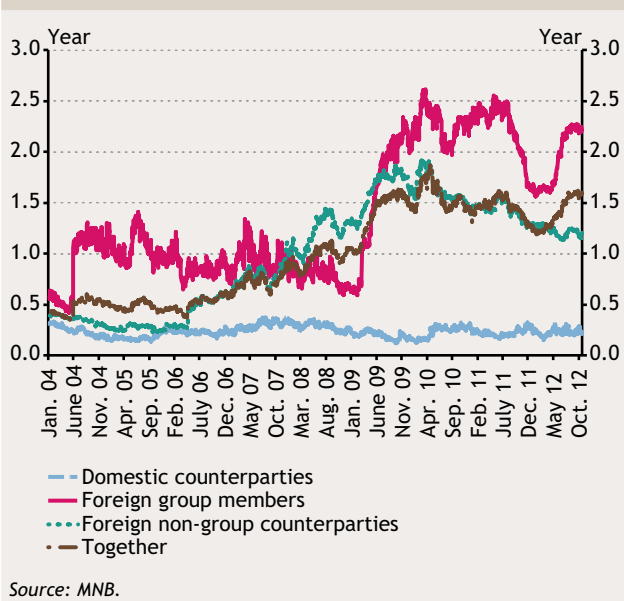
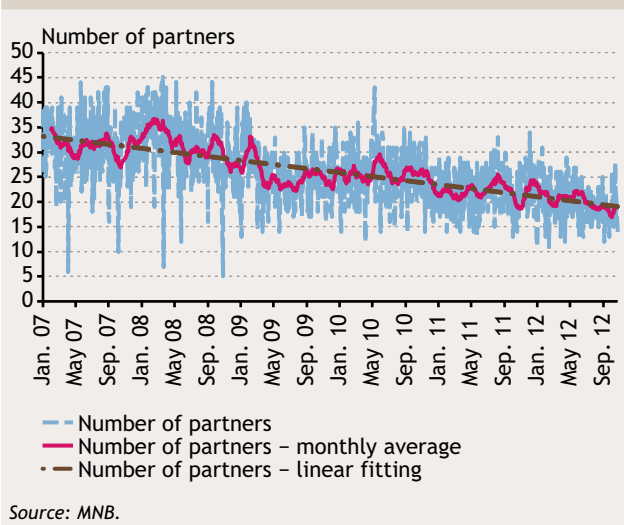


Chart 10
Number of extra-group counterparties in transactions providing foreign currency liquidity



earlier (Chart 9). It follows from the above that the maturity of swaps outstanding, which had been very short prior to the crisis, started to become longer. It can be observed, however, that starting from early 2010 the average residual maturity of extra-group transactions followed a declining trend at the system level (from 1.9 years to 1.2 years): this was mainly typical of transactions concluded by domestic banks without foreign strategic ownership, while the maturity of extra-group transactions concluded by subsidiaries and branches remained practically unchanged between 2009 and 2012. This means that the swap transactions providing foreign currency liquidity were

concluded (by domestic banks) in the market at shorter and shorter maturities; maturity extension as of 2010 was basically attributable to transactions concluded with parent banks. The extension of maturity was encouraged by the introduction of the foreign exchange funding adequacy ratio (FFAR) as of July 2012: following the decline in the maturity of parent bank transactions in 2011 H2, the maturity started to become longer as of the spring of 2012 (from 1.5 years to above 2.2 years). Within the group of subsidiaries and branches, the maturity of extra-group transactions also rose (from 0.7 year to 1 year).

In the currency swap market providing foreign currency liquidity, the number of extra-group counterparties moved on a declining trend after the crisis: partly, this may have reflected the tightening of counterparty limits. However, at the system level the decline in the number of counterparties may also have been attributable to the fact that following the crisis, maturities became much longer as a result of transactions concluded with parent banks: therefore, fewer transactions had to be concluded and less often (Chart 10).

SUMMARY

Our survey of the limit setting practices of domestic banks confirmed that during the current financial and economic crisis, non-price factors, mainly limits and margin requirements, came to the fore in financial markets as well. In the past period, in terms of limit setting, centralisation was typical within foreign banking groups, which is basically reflected in the methodology of limit setting. The surveyed banks typically apply the same limit categories, of which they felt counterparty limits to be the most restrictive at the time of the survey. The external credit rating of the counterparty (and its country), its financial indicators and CDS spread were the most important determinants of the internal ratings serving as the basis for limit amounts. In the recent period, however, maturity limits have also appeared increasingly, in addition to limit amounts. Limits are usually revised on an annual basis, but during the crisis, procedures were developed that allow prompt reaction to certain market events. Domestic banks do not have precise information on the limits set vis-à-vis them by their external market counterparties, but according to their perception, typically similar aspects may determine the specific limit levels in the banking sector.

Responding institutions confirmed the presence of breaking points presumed by us and important in terms of limit setting: the outbreak of the crisis in October 2008, the unfolding of the Greek crisis since early 2010 and the downgrade of Hungarian government debt at end-2011 and early 2012. At the same time, it was also found that some

institutions experienced similar effects already in the summer of 2007. Moreover, the announcement of the early repayment scheme and the market turbulence in early 2012 influenced the risk assessment of the exposure to domestic players.

In our analysis, we examined the unsecured forint interbank deposit and forint currency swap markets, which play a key role in terms of monetary transmission. Data originating from transactions confirm that significant limit tightening may have taken place in the past few years. However, market data only partly reflect the perceived breaking points; the reduction of unobserved, unutilised limits may play an important role in the difference. In the interbank deposit market, this was reflected in the decline in daily turnover and the shortening of maturity, while maturity shortening in the currency swap market took place only in more turbulent periods, as a result of the spreading of margin requirements and the introduction of the foreign exchange funding adequacy ratio (FFAR).

The tightening of counterparty limits in the forint interbank money market and the currency swap market may result in damage to the interest rate transmission mechanism as well as in greater reliance on the central bank of Hungary. At the same time, the tightening and entry into effect of the limits set vis-à-vis the MNB may reduce the efficiency of central bank instruments. We faced all this at end-2011 and in early 2012, following the downgrade of Hungarian sovereign debt to the non-investment category, when – according to our survey as well as available data – in certain markets the limits among participants and their limits set to the MNB became restrictive. As a result, the average interest rate on overnight unsecured interbank forint money market transactions (HUFONIA) left the interest rate corridor for a short time, and FX swap spreads and recourse to central bank swap facilities surged, in parallel with rising demand for foreign currency.

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ANNEX 1: DETERMINANTS OF LIMIT AMOUNTS AND OTHER TYPES OF LIMITS BY TRANSACTION TYPE (RATIO OF MENTIONS)

Market	Deal/ Asset type	Duration	Tenor	CDS of the counterparty/ issuer	CDS of the counterparty/ issuer's country	Value at risk	Counterparty/ issuer's credit rating	Credit rating of the counterparty/ issuer's country	CSA or the other risk-mitigating agreement	CLS membership	Financial indicators (e.g. leverage ratio)	Other market indicators
Money market	HUF depo	0	8	5	6	1	9	6	3	0	7	3
	HUF repo, Sell & Buy	0	7	4	5	1	8	5	3	0	6	3
	FX depo	0	8	5	6	1	9	6	3	0	7	3
	FX repo, Sell & Buy	0	6	4	5	1	8	5	3	0	6	3
FX market	Spot	0	5	5	6	3	9	6	4	2	7	4
	Forward	0	7	4	5	4	8	5	8	1	7	5
	FX swap	0	7	4	5	4	8	5	8	1	7	5
	CIRS	0	6	5	5	4	8	5	7	1	6	5
	Bank	3	6	4	5	5	1	7	4	0	5	4
	Corporate	3	4	4	4	4	1	6	4	0	4	4
Bond market	Hungarian sovereign	4	7	5	6	2	9	7	4	0	6	4
	Other sovereign	3	6	4	5	2	8	6	4	0	5	4
	Covered	3	4	4	4	1	6	4	4	0	4	4
Total		16	81	57	67	26	103	69	59	5	77	51