5.4 Banks' liquidity management regimes and interbank activity in a financial stability perspective*

Supplying the banking system with sufficient liquidity is in general a central bank responsibility. This includes the execution of monetary policy operations, the design of robust payment systems as well as issues related to emergency liquidity assistance. In normal times banks get liquidity through monetary policy operations and smooth their liquidity position via interbank deposits and lending, which contributes to redistribute liquidity efficiently in the banking sector. Indeed, interbank markets play an important role in the functioning of the financial system by transferring liquidity from banks with a cash surplus to banks with a cash deficit. In this sense, interbank markets foster financial integration but they also increase linkages and contagion risks within the financial system. The first part of this article lays out some aspects of liquidity management regimes with a focus on financial stability.

Luxembourg's financial center is characterized by a high proportion of branches and subsidiaries of international banks carrying out a mainly liabilities driven activity generating excess liquidity in Luxembourg. The second part of this article illustrates the liquidity hub function of the Luxembourg financial center.

5.4.1 Liquidity management regimes

Theoretically, a bank's liquidity risks can be minimised by holding substantial cash and fully liquid assets. However, this entails opportunity costs for a bank in the form of lower interest income. Thus, an efficient liquidity management aims to minimise these costs and earnings risks.

According to recent ECB[81] and Joint Forum[82] studies, large EU banks' funding sources have changed in recent years with an increasing use of wholesale funding and new instruments such as securitisation, covered bonds and other structured products. This indeed has resulted into broader sources of available liquidity but also higher volatility of funding costs and a more complicated liquidity profile assessment. On the one hand, new instruments can increase diversification and efficiency of liquidity risk allocation in the market. But on the other hand, the liquidity and stability of these new instruments themselves have not been tested yet under stressed conditions. Moreover, some instruments are difficult to evaluate and large intra-day variations in the payment profile add to the uncertainties rendering an efficient liquidity management more difficult.

Regarding the structure of the euro money market, the ECB's biennial study[83] shows that the aggregated turnover of the euro money market expanded strongly, with a particularly strong upswing of interest rate derivatives.

An efficient liquidity management requires an accurate overall and timely picture of a bank's actual and potential payment profile at different time horizons as well on a group wide level as on an entity level. This also includes the elaboration of liquidity contingency plans.

Increasing internationalisation, financial integration and consolidation may be a factor influencing liquidity management regimes. Credit institutions can adopt either a centralised, or a decentralized or a mixed approach for their liquidity management. On the one hand, centralisation of liquidity can lead to cost efficiency at the group level and enable a better aggregate overview of the liquidity profile of a banking group active in many different locations. On the other hand, the centralisation of liquidity management means greater interlinkages within banking groups and thereby greater spillover risks especially in times of stress.

According to a study carried out by the ECB in 2001, the introduction of the euro could have lead banking groups to concentrate the liquidity management of euro assets into one center for the group; thereby facilitating the coordination of funding flows, enhancing transparency and allowing pre-netting in the group. Overall, one could imagine a further trend towards more centralized liquidity management systems in Europe in view of the ongoing internationalisation and integration of the international banking regimes.

In general, various factors might influence the de/centralisation of liquidity management in banking groups like inter alia the level of complexity of a group's activities, the level of internationalisation of its business, types of foreign currency exposure, transaction costs and time zone differences, need for local knowledge and proximity, different legal and fiscal operating regimes, insolvency law, collateral eligibility and transferability, haircut regimes, liquidity flow restrictions, large expo-

* *Contribution by Sandrine Scheller.*

81 *Report on EU Banking Structures 2006, ECB, 2006*

82 *The management of liquidity risk in financial groups, The Joint Forum, Basel Committee on Banking Supervision, 2006*

83 *Euro money market study 2006, ECB, February 2006*

sure rules, deposit guarantee schemes, regulatory and supervisory regimes. Regarding regulatory and supervisory regimes, not the prudential requirements as such, but rather the existing differences between domestic regimes may be an issue for banking groups operating in many different countries.

Internationally active banks have to meet local regulatory regimes and hold liquidity to meet payment obligations in each of the systems they are dealing with. Though, holding large enough levels of liquidity in each local entity and financial system to cover all local needs, would be costly and suboptimal. Banking groups may therefore have an incentive to centralise at least the management of information about the liquidity profile of its local entities in order to get an aggregate picture of the overall liquidity profile of the group. Though, local subsidiaries and branches may be more familiar with local conditions and counterparties, which may provide incentives to decentralise other parts of liquidity management.

Taking into account the aforementioned aspects, it is probable that internationally active banks tend at least to centralise the setting of overall liquidity policy, contingency plans, principles and limits and their global monitoring whereas day to day liquidity monitoring and implementation of liquidity management may, at least in some cases, remain more decentralised. The centralisation of the global liquidity management framework and its monitoring may be of particular interest for large and complex banking groups in order to have a timely aggregate picture of the group's overall liquidity profile.

If there were no barriers at all to transferring funds between systems, and to centralize liquidity management, large banking groups could fully centralize their liquidity management and exploit economies of scale. However, complete pooling of liquidity could imply a greater exposure to operational risk due to liquidity concentration in fewer systems. Notwithstanding the benefits associated with a more efficient functioning of a group's internal liquidity management, central liquidity management may increase intra-group and cross-border contagion risks, with a potential impact on financial stability.

Arrangements in times of stress

The aforementioned aspects also have implications on arrangements for the handling of liquidity in times of stress. Primarily, financial institutions have contingency plans in place for liquidity stress situations, including credit lines with their main counterparties. However, in times of market stress, counterparties tend to be more vigilant and might be reluctant to provide liquidity to the interbank market, in particular to counterparties already encountering problems. This could lead to a situation where overall liquidity is still sufficient in the banking system, but not well distributed through the financial system. Liquidity problems arising at one institution have the potential to spread through interbank operations and payment systems to other institutions and turn into a systemic liquidity problem.

In the context of liquidity stress, a central bank may consider in exceptional circumstances and on a case-by-case basis to provide emergency liquidity assistance to temporarily illiquid institutions in its jurisdiction in order to prevent potential systemic spillover effects. Hence, central banks need to closely monitor any liquidity developments. This inter alia englobes information on contingency funding plans, instruments involved for liquidity management, structure of liquidity management regimes, knowledge about where the liquidity and collateral is held and whether it can be transferred in a timely manner between different entities of a group. Information sharing between the responsible authorities at the domestic, cross-border and cross-sector level is crucial for the assessment of the global liquidity picture in an integrated financial environment.

The Luxembourg financial center being a major host country of branches and subsidiaries of international banks, the BCL has an obvious interest in monitoring issues related to liquidity management regimes. As a first step, in order to get an idea of the importance of liquidity hub activities of Luxembourg based banks the remainder of this article illustrates the high participation of Luxembourg banks in the Eurosystem's tender operations and the importance of the Luxembourg interbank market on a global as well as on an intra-group level.

5.4.2 The Luxembourg financial center as a liquidity hub

Participation in central bank open market operations

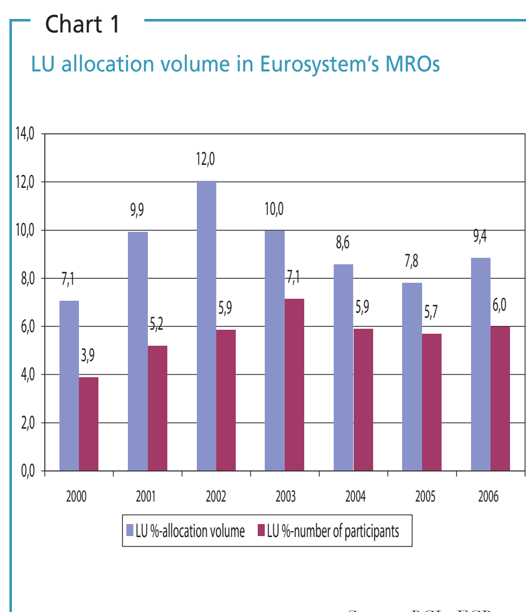
Euro area banks get the bulk of their central bank money through their participation in the main refinancing operations (MRO). Over the last years, Luxembourg banks record a high participation in the Eurosystem's tenders ranking 2nd in terms of allocation volume in 2006. Over the last 3 years, the share of Luxembourg banks in the total volume allocated by the Eurosystem's

MROs was on average 8,6%; albeit Luxembourg banks' balance sheet sum represents only about 3,5% of euro zone banks' total balance sheet sum. The share of Luxembourg in the total number of participating banks was on average 5,9%; albeit the number of Luxembourg banks accounts only for about 2,5% in the total number of banks established in the euro zone.

Overall, the large participation of Luxembourg in the Eurosystem's monetary policy operations undermines that Luxembourg is traditionally a liquidity hub, envolving the redistribution of liquidity in the interbank market.

Chart 1

LU allocation volume in Eurosystem's MROs



Source: BCL, ECB

Data on tender participation in Luxembourg show that, international banking groups who have several entities in Luxembourg in general only participate via one single entity in the tenders via Luxembourg. In general, entities belonging to small and medium sized international banking groups seem to participate more in tenders via their host country Luxembourg than entities of large international banking groups. This could be an indication for a higher trend of centralization of tender participation at large international banking groups than at small and medium sized banking groups. Though, this can also be seen in light of the fact that large banks may have easier and cheaper access to refinancing via capital markets than small and medium sized banks.

Interbank activity and reflections on financial stability

Albeit being already in an excess liquidity position, Luxembourg banks are important participants in the Eurosystem's liquidity providing operations. This underpins the role of Luxembourg banks as a center of competence for money market products and the redistribution of liquidity.

Regarding liquidity management issues and possible implications on contagion risks, it is interesting to explore how this excess liquidity is redistributed through the interbank market. Most Luxembourg based banks belong to international banking groups[84] which may have adopted a more or less centralized approach to at least some parts of their liquidity management.

Interbank activity represents a large share of the total balance sheet of banks in Luxembourg, with a particular importance of intragroup assets and liabilities. On the one hand, this may be linked to strategic policies of the concerned banking groups. On the other hand, this may also be an indication for centralization of liquidity management with excess liquidity generated in Luxembourg by branches and subsidiaries of foreign banks being primarily redistributed to other entities of the group in need of liquidity or having a more asset driven activity.

Indeed, Luxembourg banking data show that, on a net basis[85], interbank loans exceed interbank deposits all over the period analysed (September 1998-December 2006).

On the asset side, the share of interbank loans in total assets fluctuates between 53% and 47% during the period analysed (September 1998-December 2006). End of December 2006, the share of interbank loans in total assets reached 49%, of which 72% are intragroup loans. Regarding the share of intragroup loans in total interbank loans, it is interesting to highlight the rise of this share from around 60% in 2000 to 72% in 2006, which may inter alia be seen in light of the overall M&A activity.

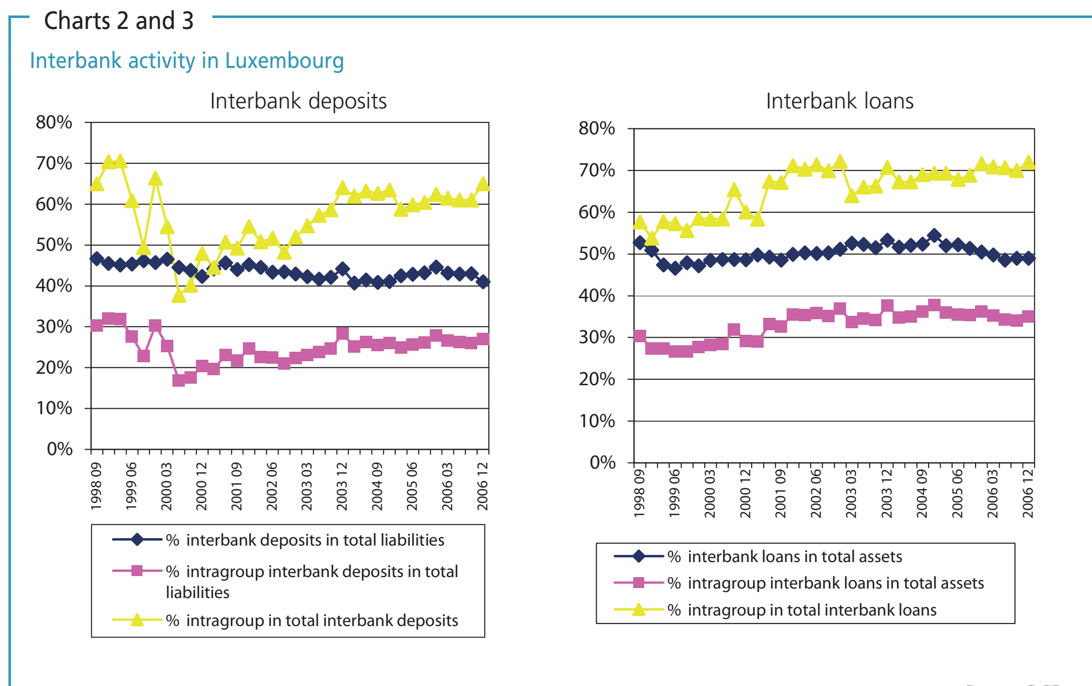
84 *End 2005, 96% of total banks in Luxembourg are branches and subsidiaries of foreign banks and 94% of total bank assets are hold by foreign entities.*

85 *Interbank loans/Interbank deposits*

On the liabilities side, the share of interbank deposits in total liabilities fluctuates between 41% and 47% during the period analysed (September 1998-December 2006). End of December 2006, interbank deposits represent 41% of total liabilities. Albeit being rather fluctuating, the share of intragroup deposits in total interbank deposits in general increased since 2000 to reach about 65% in 2006.

Charts 2 and 3

Interbank activity in Luxembourg

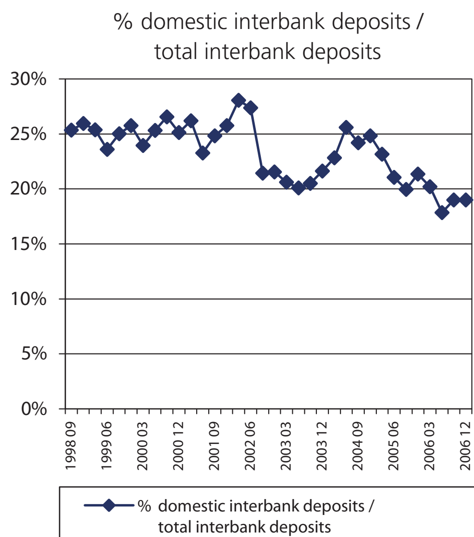


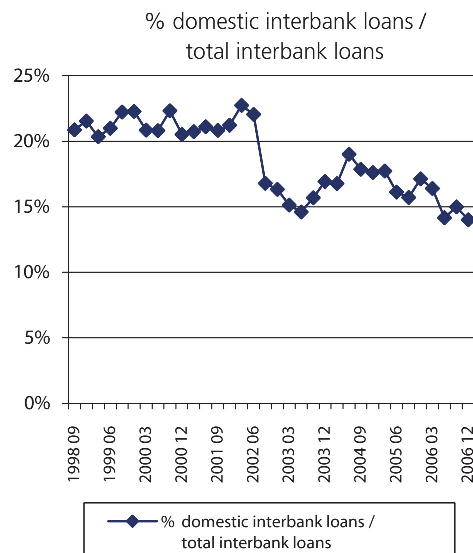
Source: BCL

A further breakdown of interbank loans shows the small share of domestic interbank loans compared to cross-border interbank loans. Moreover, between the end of the nineties and 2006, the share of cross-border loans in total interbank loans continuously increased whereas the domestic share decreased. End of December 2006, 86% of total interbank loans are of cross-border nature, compared to 78% at the end of the 90ies. Similarly to the asset side, a further breakdown at the liabilities side, reveals a high share of cross border interbank deposits compared to domestic interbank deposits. The share of interbank cross-border deposits in total assets increased over time.

Charts 4 and 5

Part of domestic interbank activity in Luxembourg





Source: BCL

The previous figures illustrate the importance of interbank activity, in particular cross-border and intragroup transfers, in Luxembourg and hence the potential for contagion via the interbank market. Financial consolidation and more centralized liquidity management regimes may have lead to an intensification of transfers in the interbank intragroup market.

Regarding collateralization practices, global structural developments perceptible in general in other markets may also affect Luxembourg banks. One tendency perceptible is the trend from unsecured to secured funding. Collateral becomes more important but cash transactions, i.e. unsecured transactions persist, in particular in a group structure. Pressures on return on assets and return on equity may lead to an increasing use of secured transactions, which are less costly than unsecured transactions in terms of capital requirements.

5.4.3 Concluding remarks

In normal times, the interbank market acts as an important liquidity distribution channel transferring liquidity from banks with a cash surplus to banks with a cash deficit. This indeed, has a positive effect on bank's efficiency. However, in times of stress, where all banks try to seek on their interbank liquidity, this redistribution channel may not work adequately and turn into contagion effects.

Bank interlinkages can be a channel through which problems in one bank spread across the system, as well domestically as cross-border. On the one hand, interbank lending can contribute to financial stability as it enhances a bank's own incentives for monitoring other banks. But on the other hand, liquidity problems at one bank directly or indirectly translate into increasing pressure on its interbank counterparts. Direct exposures mean that a liquidity problem in one bank could cause significant losses to its counterparts. Indirect exposures mean for instance that liquidity problems in one bank could cause market doubts about the soundness of other banks involved in similar activities.

High and increasing interbank exposures both on a domestic and on a cross-border level as well as developments in collateral practices and money market instruments are important issues from a financial stability point of view, which merit ongoing monitoring and further analysis. This is of particular importance for countries, such as Luxembourg, that are characterized by the large presence of entities of foreign banking groups and an important interbank activity.