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The development of payment systems and settlement systems

Icelandic payment systems in an international context

Work has been in progress in recent years on adapting the structure of Icelandic payment and settlement systems to international standards. These standards have been devised in two forums, i.e. the European Community and the Bank for International Settlements (BIS).

Iceland participates in the creation of a European Single Payments Area. Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems defines various concepts for such systems, lays down special rules regarding insolvency and stipulates an obligation on EEA States to notify the systems to which the Directive applies. The provisions of the Directive were implemented into Icelandic law by the Act no. 90/1999 on the Security of Transfer Orders in Payment Systems.

No binding rules have yet been adopted in Iceland concerning the functioning and management of payment systems. Nevertheless, the 10 Core Principles for Systematically Important Payment Systems (BIS) stipulate requirements concerning good practices and a secure environment for payments intermediation in order to reduce systemic risk. These rules were discussed in *Monetary Bulletin* 2000/4.

The role of the Central Bank of Iceland

Under the Central Bank Act no. 36/2001, the Bank shall "promote an efficient and safe financial system, including domestic payment systems and foreign payment intermediation." Payment systems come under the Central Bank's function of promoting the stability of the financial system, given the crucial importance of ensuring their efficient and safe operation. In most countries, central banks play a critical role in national payment systems. They also serve as a centre for settlement of payments between individual credit institutions.

In recent years the Central Bank of Iceland has taken the initiative in transforming domestic payment system arrangements with the aim of fulfilling the requirements generally made towards such systems in other countries, not least in terms of safety. Among other things the Central Bank has adopted rules on access to settlement accounts for payment systems, cf. Rules no. 951/2000.

Icelandic payment systems

Two types of payment systems, which also serve as settlement systems, are currently in operation in Iceland, i.e. a Real-Time Gross Settlement (RTGS) system and a netting system for low-value payments. The Icelandic Banks' Data Centre (RB) provides software services for both systems, while the Central Bank serves as an intermediary for their settlements. Securities trading settlements are made through these systems.

The RTGS system went into operation in December 2000. It makes final settlement of individual payment orders as soon as the balance on the

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payer's account permits this, i.e. carries out a real-time gross settlement. Thus, the RTGS system enters payments in excess of 100 m.kr. directly into or from participants' current accounts in the Central Bank.

It is likely that the floor for RTGS payments will be brought down to as low as 5 m.kr. Such a change would serve to reduce risks in both the RTGS system and the netting system. Work has been launched on formulating further rules for risk management, collateral securities and unblocking of queues in the RTGS system.

The netting system for low-value payments handles the implementation, netting and settlement of payment orders the value of which is beneath the limit for the RTGS system. It nets the accumulated payment orders between participants once a day and subsequently performs the settlement. Settlement is made through the participants' settlement accounts in the Central Bank.

The current netting system has functioned well in many respects. Its main advantages are that credit institutions' customers have access to funds as soon as payment orders have been made, the system is convenient to use and no major setbacks have occurred in its operations to date. However, an obvious flaw is its lack of specific requirements for risk management; in fact it is the Central Bank that bears the risk of a default on settlement.

Tasks of the netting system provider

A netting system provider, FGM (Fjölgreidslumidlun hf.), was established in May 2000 to supervise the netting system as well as handling various channels for payment card transactions. It was founded by the Icelandic commercial banks, i.e. Búnadarbanki Íslands hf., Íslandsbanki-FBA hf. and Landsbanki Íslands hf., the Federation of Icelandic Savings Banks, the Central Bank and the Icelandic payment card companies Greidslumidlun hf. and Kreditkort hf.

FGM has been engaged in formulating internal rules for activities of the netting system which are aimed at adapting the current system to Act no. 90/1999 and the 10 Core Principles. Several changes clearly need to be made to the software on which the system is based, in order to set up active risk management and a reliable framework for the use of collateral securities.

Strategic planning for the netting system

On September 7, 2001 the Board of Directors of FGM approved a document which is intended to provide a basis for a software solution developed by RB which will meet the requirements made towards the system. It is expected that considerable changes will be made to the system compared with its current framework. The main aim of the changes is to adapt the system to the 10 Core Principles, in particular as regards internal rules on risk management and collateral securities.

The basic assumption behind the proposed changes was to rule out any cutbacks in services to credit institutions' customers by delaying their access to payments until the day after orders for them are given. The acceptance of such a delay would have simplified work on meeting requirements for risk management among participants in the system. It was apparent that a system needed to be established which (a) showed the real-time debt exposures (i.e. netting exposures) between participants, (b) imposed ceilings on those exposures, (c) made demands for participants to monitor their exposures and to respond if these are approaching the ceiling, and (d) made requirements regarding collateral for settlement of netting exposures.

Real-time netting exposures between participants in the system will thus be made visible, enabling them to monitor and manage the risk inherent in the payments intermediation. The system will be open round-the-clock and customers will continue to have access to funds immediately upon their deposit in accounts.

Participants will approve authorisations for netting exposures towards each other and provide collateral securities for payment of the highest individual authorisation. Participants will also be able to deposit liquid funds in dedicated accounts in order to cover temporary imbalances in their payment exposures towards other participants. Specific aspects of the proposed system will now be described in more detail.

Payment orders

Payment orders are regarded as having reached the netting system when it has confirmed their receipt by verifiable means to the participant issuing the orders. Precise times will be registered for receipt of pay-

ment orders by the system and the sending of a confirmation of receipt.

On confirmation, payment orders are considered binding with respect to third parties and cannot be withdrawn afterwards. The legal implications of a participant's insolvency are governed by Act no. 90/1999.

As soon as a payment order is implemented, a change in the net real-time exposure of all transactions between individual participants (i.e. the netting exposure) is registered in a counter which is visible to the participants concerned and to the Central Bank.

Maximum netting exposures and collateral

Participants agree among themselves on their maximum netting exposures. Table 1 shows examples of agreed maximum exposures among four participants in the netting system. The system ensures that the netting exposure between participants according to the counter at any time will not exceed the agreed ceiling. If the system receives a request to perform a payment which would, if confirmed and implemented, push the respective netting exposure above the agreed ceiling, it is assumed that the system will reject the request.

Table 1 Agreed maximum exposures (example)

	Bank A	*Bank B*	*Bank C*	*Bank D*
Bank A	0	500	400	50
Bank B	500	0	300	50
Bank C	400	300	0	50
Bank D	50	50	50	0

Participants place secure and adequate collateral securities with the Central Bank to cover possible defaults on settlements in the system. This will enable a settlement even though the participant with the largest single settlement obligation is unable to make payment. The value of collateral securities pledged by each participant will presumably be based on the highest individual agreed netting exposure of each participant with respect to the others. Table 2 shows examples of the value of collateral securities relative to the agreed ceilings given in Table 1.

Table 2 Value of collateral (example)

	Value
Bank A	500
Bank B	500
Bank C	400
Bank D	50

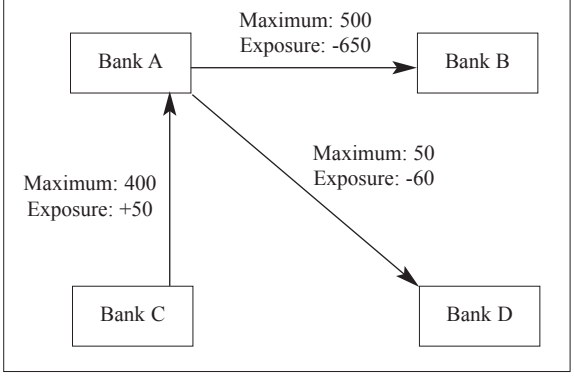
Risk management

Liquidity imbalances are likely to exceed the agreed limits temporarily. In response, participants use special accounts at the Central Bank to manage their netting exposures with respect to other individual counterparties. Each participant has a separate netting account for each counterparty. The participants can thus deposit funds in the respective account in order to raise their netting exposures temporarily.

Participants monitor their separate netting exposures towards each other as they appear on the respective counters, in order to prevent refusals to implement payment orders in good time. Before the ceiling is reached, any participant with a negative exposure is obliged to make every effort to prevent a payment refusal by depositing funds on the counterparty's netting account and thereby raising his authorisation beyond the maximum level.

Chart 1 presents examples of the maximum netting exposures and real exposures of a given bank (A) with respect to three other participants (B, C and

Chart 1 Maximum exposure and real exposure of bank A with respect to other banks (example)



D). Bank A's ceiling with respect to B is 500, but its real exposure is negative by 650. Nevertheless, the system has not closed on Bank A, because it can exceed its ceiling by paying 150 into the netting account between these two banks. The same applies to the exposures of Banks A and D with respect to each other. The ceiling there is 50, but Bank A has authorisation for a negative exposure of 60, having paid 10 into the netting account. Bank A's exposure towards Bank C, however, is positive. Table 3 outlines the relationship between Bank A's maximum exposure, real exposure and liquidity management.

Table 3 Bank A exposures (example)

	Maximum exposure	*Collateral A*	*Netting exposure (counter)*	*Liquidity (central (bank account)*	*Total*
Bank B	500		-650	150	-500
Bank C	400	500	50	0	50
Bank D	50		-60	10	-50
Total	950	500	-660	160	-500

Netting and settlement

Participants have settlement accounts at the Central Bank and also take part in the RTGS system. It has been proposed that netting will take place in the netting system at 16:00 hrs. On settlement, the negative exposure between participants is cleared with a payment in the RTGS system irrespective of the amount. If any participant cannot settle a negative exposure with respect to the others, the Central Bank makes use of the collateral securities to settle the obligation.

Technical facilities and monitoring

Participants will be required to have at their disposal such technical facilities as the Board of FGM stipulates at any time, and to outline the functioning of the system to their employees and customers. A contingency plan for meeting technical setbacks will be drawn up. It is assumed that the Central Bank will monitor payment system operations with respect to their safety, efficiency and cost-effectiveness, and that the Financial Supervisory Authority will monitor individual participants' application of the system rules.

Consultation on development of the netting system

FGM has made a formal request to RB for the current payments system to be adapted to the above system description. Regular consultation meetings will be held between representatives of commercial banks, savings banks, FGM and the Central Bank. The aim is to create a consultative forum for exchanging views on system development, use and suitability. This work may well reveal the need to make some modifications to the above system outline.

The design phase is scheduled for completion at the beginning of next year. The system will then be tested for several months in order to provide practical experience of its use. Final decisions will then be made as to participants' maximum netting exposures towards each other and also the amounts and arrangements for collateral securities in both the netting system and RTGS system. Arrangements for settlement of securities transactions will also be reviewed at the same time.

When the final framework for payment systems has been established and the necessary rules adopted, the systems will be notified to the EFTA Surveillance Authority in accordance with Act no. 90/1999.