

Mr Bergo focuses on Norges Bank's responsibility for promoting an efficient payment system

Address by Mr Jarle Bergo, Deputy Governor of Norges Bank, to the Banks' Payment Systems Conference, held in Oslo on 11 November 1999.

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1. Background

Risk in the payment system is closely linked to the use of deposits. Payment transactions - via banks - take time, and this time-lag (between payment and settlement) is an important source of settlement risk. Cash payment allows immediate settlement without any such risk. Therefore, the transition from cash settlement to the use of deposits involves greater risk, but also greater efficiency. Thus, the public's choice of means of payment and payment instruments directly affects the degree of risk and efficiency in the payment system.

The public's choice of different means of payment and payment instruments varies over time. This is, of course, nothing new. Already in 1924, the Banking Commission - which drafted a new law on commercial banks at the time - stated the following:

The concept of means of payment is not beyond change; it has taken different forms throughout time. The law states what should be considered legal tender..., but common practice also allows certain secure assets to be used as payment... These bank-issued means of payment have - in the more developed countries - reduced the use of legal tender to minor daily disbursements (cash payments in its narrowest sense).

Today, the payment system continues to undergo rapid change. New technology, new participants, new regulations and more globalisation have made this fairly complicated subject matter even more challenging to keep up with. Norges Bank has a statutory responsibility for promoting an efficient payment system. This responsibility becomes even more demanding when the systems change rapidly. The focus of my address here today will be on Norges Bank's responsibility as distinct from the responsibility of the market participants and, in particular, that of the banks. However, before I embark upon this I will provide an assessment of risk and efficiency in the Norwegian payment system.

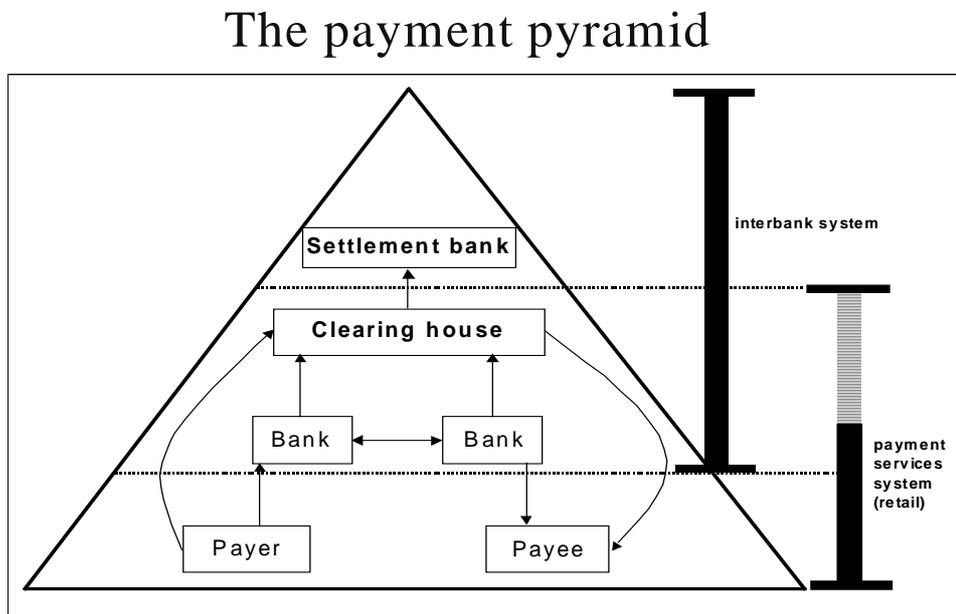
I would like to begin with four observations on risk and efficiency in the payment system:

2. Observations

First, payment system risk is closely linked to the organisation of payment services (legal agreements, time of payment, etc.)

Central banks have been particularly concerned with risk in large value transfer systems, or systems for clearing and settlement of payments between banks. These systems are located at the top of the so-called payment pyramid.

Chart 1: The payment pyramid



This is where the large, time-critical payments occur and obviously where the system risk is greatest. Disruptions in this segment of the payment system can lead to severe consequences, partly through the banks' exposure to each other and partly through the banks' processing of payments to and from their customers – i.e. retail payments.

At Norges Bank, we have come to focus more on risk in the retail payment system, not least because many small transactions can amount to a fairly large sum, but also because it typically takes some time before final settlement between banks occurs. Internationally, more attention has been paid to risk in retail systems. Moreover, if such systems combine pure retail payments and large payments - as is the case in Norway - it is recommended internationally that the risk-reduction measures be as strict for these systems as for systems for large-value transfers.

We have also seen that part of the credit risk between banks arises in connection with (the legal basis related to) the various payment services. In some cases, the banks' legal obligations actually coincide with the time the customer pays, i.e. long before the actual interbank transaction. For this reason, an assessment of the risk in interbank systems must be based on a thorough analysis of settlement times for the most important payment services.

As a central bank, we are naturally concerned that the entire payment system functions smoothly. If important systems for payment services fail, robust interbank systems will obviously be of limited use. At the very worst, extensive problems in systems for payment services might reduce the public's confidence in deposits, leading to a transition to cash payments. Therefore, we need to be aware of the interplay between the interbank systems and the systems for payment services.

Second, the risk in the payment system can be reduced by increased use of gross settlement in the central bank - but there are costs attached to such a conversion.

An increasing number of countries, including Norway, have introduced gross settlement systems - RTGS systems - for large-value transfers.¹ The conversion from net to gross settlement for large payments can eliminate credit risk and, thus, a fundamental cause of systemic risk from an interbank settlement. However, such conversion is not cost-free. Let me briefly mention two disadvantages of gross settlement:

- First, it is evident that gross settlement does not completely eliminate the danger of systemic risk. Banks will continue to be linked through interbank loans, and problems in one institution may still lead to considerable spill-over effects even if the settlement risk of the net settlement has been eliminated.² Moreover, the risk may increase for other institutions which must grant more credit (to those in need of liquidity for the gross settlement) or for institutions which do not receive settlement as quickly as before (due to queuing problems with the gross settlement).
- Second, the transition to gross settlement may increase the liquidity costs for settlement participants. Whenever transactions are to be settled concurrently, there is always a risk of “gridlock”, i.e. that settlement is halted because liquidity has been unevenly distributed. However, this is a well-known situation and is resolved in many countries by the central bank providing loans to system participants.

Third, there is greater need to balance risk against efficiency

In recent years, more attention has been drawn to weighing risk against efficiency. This is particularly the result of experiences we and other central banks have had with the new payment systems and the accompanying operating rules. RTGS systems are relatively liquidity intensive, and the cost of collateral may be fairly high. Compared with the initial situation - “non-secure” net systems - this cost was widely considered as a reasonable price to pay. However, a number of “in-between solutions” - i.e. hybrids - have appeared over time, blurring the distinction between net and gross systems. For instance, in some net systems several settlements occur throughout the day, often in conjunction with various forms of exposure limits and collective guarantee arrangements. Certain gross systems have solved liquidity problems with new queuing solutions (algorithms), often in combination with new forms of central bank loans (primarily against security).

We thus see some convergence towards a new type of clearing and settlement system: “secure” net systems or “optimised” gross systems. This does not mean a reduction in the risk-reduction measures placed on such systems; if anything, the minimum requirements have become stricter.

And, fourth, there is a greater consensus on the (international) standards that must be met by the payment systems.

The Lamfalussy minimum standards are well known. They were drafted by a G10 committee at the beginning of the 1990s, and are minimum requirements intended to reduce the risk in large, international clearing and settlement systems. Gradually, they have also become standards for corresponding national systems.

According to the Lamfalussy standards, payment systems should have a well-founded legal foundation, the risk should be known and understood, the division of responsibility and risk limits should be clearly defined, settlement should be completed - even if the largest participant experiences payment problems, and there should be publicly-disclosed admission criteria and satisfactory back-up routines.

¹ RTGS = real-time gross settlement.

² If the banks practise early crediting (based on queuing information) the credit risk will also arise in a gross system.

Lamfalussy standards

- Well-founded legal basis
 - The risk must be known and understood
 - Clear division of responsibility
 - Exposure limits
 - Settlement is to be completed even if the largest participant experiences problems
 - Objective and publicly-disclosed admission criteria
 - Operational, reliable technical systems
 - Satisfactory back-up routines
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The Lamfalussy minimum standards are still viable but, as mentioned above, some adjustments have been necessary in the light of what has been experienced since they first appeared in 1990. A proposal for revised standards is currently being evaluated in the BIS³ and a final version is expected to be available some time next year.

I have pointed out these requirements because they are also relevant for us in Norway. If there should ever be any link to TARGET,⁴ our interbank systems would be expected to meet similar requirements. Moreover, we must assume that foreign bankers will demand that our systems satisfy international requirements. We could probably discuss whether these requirements are equally relevant for all portions of the NICS-system,⁵ but I think that in a given situation involving a link-up with an international system, we will have only one choice - full implementation of the requirements! In the proposed system for licensing interbank systems, emphasis will be placed on evaluating whether the systems fulfil such international requirements.

3. Risk and efficiency in the Norwegian payment system

3.1. Retail payments

Allow me to turn to a closer examination of the state of the Norwegian payment system. First looking at the retail side of the payment system - where so-called customer payments dominate - there are two factors I would like to bring to the fore: one is the (continuing) sharp increase in electronic services and the other is the stable use of cash.

³ BIS: Bank for International Settlements.

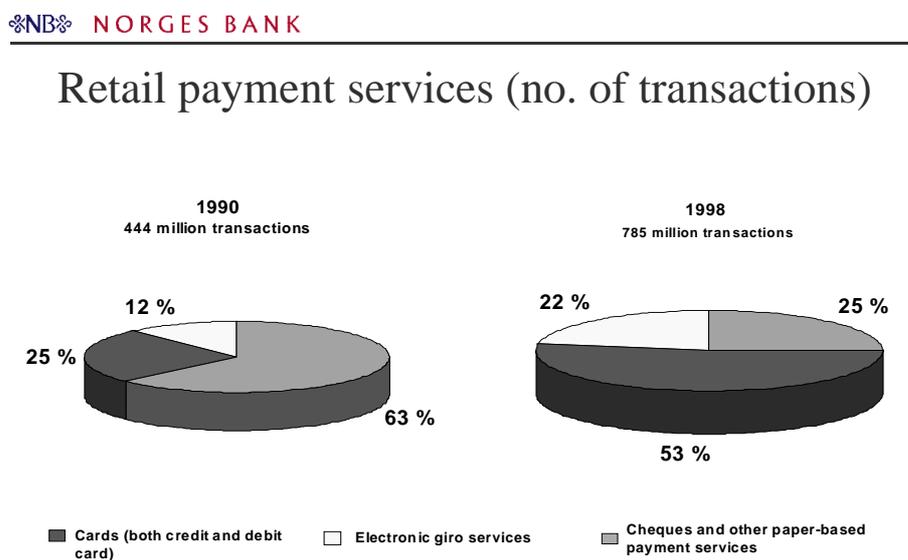
⁴ TARGET: Trans-European Automated Real-time Gross settlement Express Transfer (system).

⁵ NICS: Norwegian Interbank Clearing System.

3.1.1. Transition to electronic payment instruments

If we first look at electronic payment services, we see that the increase in the use of cards is what is most striking.

Chart 3: Retail payment services (number of transactions) in 1990 and 1998



Source: Norges Bank, *Annual Report on Payment Systems 1998*

The use of payment cards in Norway now exceeds use in most other OECD countries⁶ and the rate of increase is higher than in many other countries with advanced payment systems - such as Finland and Denmark.

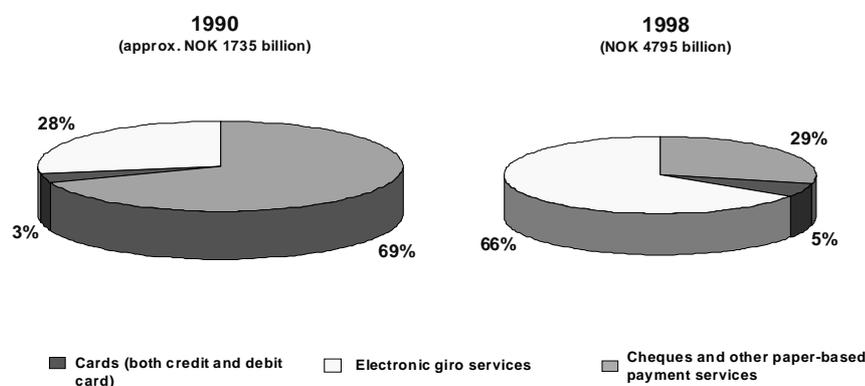
An increased use of electronic services is important for efficiency, including cost-effectiveness, in the payment system. We know there are considerable cost differences between various payment services and that there is an equally large potential for savings. In terms of cost, the transition to more cost-efficient paper-based services - such as the mail giro - is important. It is estimated that the total cost of the payment system in Western countries may approach 2-3% of GDP. Therefore, a transition to electronic - or more cost-efficient paper-based - services will be essential to the establishment of an efficient payment system.

If we look at the breakdown between the various payment services in terms of value, we get a different picture.

⁶ Measured as number of transactions per inhabitant per year.

Chart 4: Retail payment services (value) in 1990 and 1998

Retail payment services (value)



Source: Norges Bank, Annual Report on Payment Systems 1998

We see that the share in value of payments made with payment cards - in spite of a sharp increase in the number of transactions - has not advanced much (still accounting for a mere 3-5% of the total transaction amount in the payment system). The average amount per transaction remains fairly low – i.e. approximately NOK 400. In general, we can nevertheless say that with the exception of cash, payment cards have become Norway's most important payment instrument for small transactions.

On the other hand, the electronic giro is the instrument which has increased the most in terms of value. The increase in direct transfers by business terminals has been particularly sharp, while the growth rate has been highest for "new" services - such as telebanking and home banking.

These developments are important for the further improvement of payment system efficiency. The emergence of home banking is a natural progression from telebanking, an area which is already highly developed in Norway. At the beginning of 1999, the vast majority of banks in Norway were able to offer giro services over the Internet, and turnover in 1998 already amounted to a good NOK 7bn. Considering that PC and Internet coverage in Norway is high, conditions should be favourable for developments in this area. In this connection, it will also be exciting to see how banks meet new demands for payment services related to increased trading over the Internet.

Based on the above, I would conclude that efficiency in the Norwegian payment system has improved considerably in the 1990s.

Factors behind these developments

The transition to electronic payment instruments is obviously closely connected with the spread of information technology in Norway in the 1990s. Nevertheless, it is important to point out that the correlation between new technology and an increase in efficiency is not automatic. Efficiency is the result of interaction between technology, institutions and users. The following three prerequisites must be in place for an efficient use of new technology:

First, system participants must be able to make use of the new technology. Coordination of the Norwegian payment system has been an important factor behind the swift adoption of new electronic payment services by the industry. Second, it is imperative that customers gain quick and moderately

priced access to the new payment services, such as has been the case with the spread of EFTPOS terminals.⁷ And third - and perhaps most importantly - the payment system must encourage the use of (cost-) effective payment instruments. The public must face correct incentives if their payment habits are to be changed in the right direction. Prices which reflect real cost are an important instrument in this connection. Norway has a substantial head-start on most other countries in this field. Current prices largely reflect the difference in costs between various payment services, showing that “correct” prices are a suitable instrument in changing behaviour in the payment system.

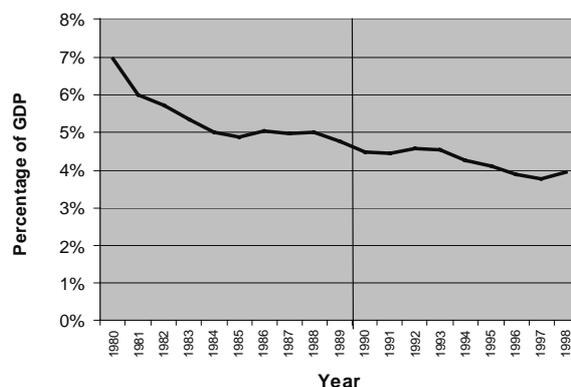
3.1.2. *The use of cash and the paradox of levelling off*

Another characteristic of the Norwegian payment system in the 1990s has been the levelling off of the use of cash, when measured as the value of banknote and coin circulation as a share of GDP, following a considerable decrease throughout the 1980s.

Chart 5: Cash in circulation as a share of GDP, 1980-1998

 NORGES BANK

Cash in circulation as a percentage of GDP



Source: Norges Bank: *Annual Report on Payment Systems 1990-1998*, *Annual Report 1980-1990*, Statistics Norway: *Historical Statistics 1994*, *Statistical Yearbook of Norway 1999*, 1995.

From a level of about 7% of GDP at the beginning of the 1980s, it appears that the use of cash may be in the process of levelling off at close to 4%. A similar levelling off has also been observed in other countries, even though the level varies. The question we ask is whether this levelling off is permanent or whether we may expect a further reduction in the use of cash. Let me briefly outline three factors I believe may be of some significance:

First, it has become less expensive to use cash in the 1990s. Cash is not an interest-bearing instrument. As such, forfeited interest income is part of the “cost” of using cash. A declining interest rate in the 1990s has substantially reduced this cost, both for the public and banks. Second, the public has been spared the real costs of cash use, while other payment instruments have increasingly been assigned full-cost prices. And third, developments in new payment instruments for small payments - cash cards - have progressed slowly. This is probably in part because we already have a well-developed EFTPOS infrastructure in Norway, and perhaps in part related to what I mentioned above - that cash continues to be an efficient and inexpensive alternative.

⁷ EFTPOS= electronic funds transfer at the point of sale.

Predicting further developments in the use of banknotes and coin, both internationally and in Norway, is a difficult task. Low inflation, low interest rates and greater access - for example, via the EFTPOS system's cash-back arrangement - will promote the further use of cash, whereas new technological solutions will reduce it. Developments in relative prices will also be of importance.

Many of Norges Bank's activities within this area are linked to our role as issuer of banknotes and coins; these activities are a public service, and costs are covered by the central bank. However, Norges Bank is also often in competition with others when it performs a number of other payment system services for banks and the postal system, which incur either no charges or no cost-covering charges for these services. This practice is currently under internal evaluation at the Bank. Consequently, we must anticipate that pricing for processing cash will approach full cost over time. It will be interesting to see if this has any affect on the public's use of cash.

3.2. *Interbank systems (clearing and settlement systems)*

I would now like to look more closely at risk and efficiency in interbank systems and, particularly, at our standing internationally.

3.2.1. *We have made a fair amount of progress*

The establishment of NICS and NBO⁸ provided us with a modern clearing and settlement system in Norway, which we managed to implement at approximately the same time as the G10 countries and the EU. Our systems have certain positive properties, such as the possibility of releasing a gridlock situation in gross settlement (in NBO) and centralised information on banks' liquidity (in NICS). Our central bank lending arrangements are generally similar to those found in other countries, where it is commonplace for collateral to be furnished for all loans in the central bank.

However, we differ from other countries in two areas in a somewhat disadvantageous way: first of all, we let a portion of the large-value transfers go through multilateral netting before being settled in Norges Bank. This is not common, but obviously contributes to less stringent liquidity requirements (this occurs in Germany and the US, among others). Second, in Norway we still make use of so-called "T-copying", in which the payee receives information on payments before the settlement has taken place.⁹ This creates the risk of the payee bank crediting the customer before the bank has received the money. The payee bank may thus be exposed to a non-controlled risk relative to the payer bank.

On the whole, however, we may conclude that we have come a long way relative to the systems some of us recall from 10-15 years ago.

3.2.2 *Risk can be further reduced*

In spite of the progress which has been made, I still think that risk in the Norwegian clearing and settlement system can and should be reduced. Allow me to point out three areas where I believe risk is still too high:

Retail netting in NICS

Turnover in this area has been high and on the rise. Average daily turnover is now NOK 28bn - compared with about NOK 18.5bn in 1998. Turnover has reached up to NOK 76bn on certain days.

⁸ NBO: Norges Bank's settlement system.

⁹ T-copying: the payer bank sends a payment order for the entire amount to the payee bank, with a copy to the data centre or the settlement bank, which sends a confirmation to the payee bank when settlement has occurred.

Thus, a delayed or rejected netting - resulting from payment problems in one bank - can cause serious problems for other banks, at any rate if the netting is prolonged until the following day.

In addition, there are no exposure limits or transaction limits for this netting system. The system really does not live up to its name, because it involves both small and large-value transfers. As I pointed out previously, this may call for us to place stricter requirements on this clearing system than what we would demand if only retail payments were involved.

If it should turn out that the bank responsible for the delay in the mass settlement really is insolvent, then we cannot rule out that the other banks will incur such sizeable losses that systemic problems may arise. We have very roughly estimated that the bilateral (gross) exposure may exceed NOK 5bn in certain settlements. However, this situation will soon be improved when the netting is given legal protection. This may reduce the total maximum loss to the amount of the multilateral net debit of the insolvent bank. If the banking industry is also able to agree on an adequate loss-sharing agreement, we assume that the remaining danger of systemic risk in this part of the payment system.

Gross settlements in NBO

Turnover through gross settlements in NBO fluctuates between NOK 100bn and NOK 200bn per day, which is by far the largest portion of the settlement. Since it is a gross settlement, risk would be expected to be minimal or non-existent. Such is not the case, however.

Liquidity problems can arise as a result of such factors as technical failure at one or several banks – i.e. operational risk. We have already experienced such situations and seen that they can quickly bring considerable liquidity strains upon other NBO participants. Norges Bank is actively analysing and improving routines associated with such situations in connection with preparations for the year 2000. This work will enable us to be well prepared if such unforeseen situations should arise after the turn of the century.

Another risk-creating factor in connection with gross settlement is the extended use of early crediting. Relevant information is lacking, but is our impression that this practice is fairly widespread. The possibility of early crediting is, as is well known, connected to the information exchange model used in the Norwegian payment system (see my previous comments on so-called “T-copying”). This practice - which, by the way, is not in accordance with international recommendations - can result in the payee bank coming into a position of non-controlled exposure in relation to the payer bank. A transition to a so-called “Y-copying” - also in the Norwegian SWIFT system - should be a long-term objective.¹⁰

Foreign exchange settlement

We must assume that the Norwegian payment system is also vulnerable to a fairly substantial amount of foreign exchange settlement risk. This risk arises because the parties to a trade must usually send the currency sold long before they know whether the currency they have purchased has been received. We know that the krone portion of foreign exchange turnover makes up a very large part of the turnover in the gross settlement system, and that such trades can amount to NOK 90bn kroner daily. The transition to gross settlement has thus reduced settlement risk in the Norwegian system, but at the same time this transition may not have addressed what may represent the largest risk. Norges Bank intends to identify foreign exchange settlement risk among Norwegian banks in the same way as has been done for G10 countries. Norges Bank also supports the inclusion of Norwegian kroner in the

¹⁰ Y-copying: the payer bank sends a payment order to the data centre, which first sends a settlement order to the settlement bank and then, when the settlement bank has confirmed that settlement has occurred, sends the payment order on to the payee bank.

foreign exchange settlement system CLS.¹¹ Ties to the CLS will be in line with international recommendations and will greatly reduce the foreign exchange settlement risk of trading in NOK.

3.2.3. *Efficiency is not satisfactory*

This observation is particularly associated with the present lending arrangement with Norges Bank and its corresponding collateralisation. At present, all loans with Norges Bank must be covered by security. The last adjustment to this policy was made in September, when collateral requirements were introduced for F-loans as well. Following this change, we now have a system resembling those of many other countries, particularly in Europe. However, the government paper market in Norway is small compared with other countries - which is, for that matter, an advantage - but it also requires us to make better use of available collateral than other countries.

When measured in October of this year, the ratio of total turnover to security furnished in the Norwegian settlement system was roughly 5.¹² This is on a par with the situation in Stockholm, but far below London, where daily turnover is around GBP 125bn - with highs of almost twice that amount - while collateral requirements are at a mere GBP 8bn, i.e. a ratio of about 16. When measured in this way, efficiency is thus at least three times greater in London than in Oslo or Stockholm - and we find nothing to indicate that the system in London is less secure. This indicates that there is room for improvement in the Norwegian system.

What areas can we improve? First of all, the retail netting system. The present system is cumbersome and both banks and Norges Bank would like to see some changes. It should be possible to develop better routines to reduce the need for collateral. A review of traffic patterns (in particular, for government payments) combined with other appropriate measures (such as exposure limits and collective collateral) should make it possible to reduce the collateral requirement substantially.

Changes in the rules for collateralisation are the other promising area for achieving noticeable gains. Present regulations hamper ongoing changes in the amount that can be pledged in favour of Norges Bank. Banks are unable to alter the collateral which has already been furnished (the previous day) in favour of Norges Bank. If it turns out on the day of settlement that too little collateral has been furnished, banks are not able to increase the amount of collateral - even though they have securities available in the VPS.¹³ This sluggish system - resulting from the Act relating to the Norwegian Central Securities Depository - prevents banks from adjusting their collateral throughout the day. It goes without saying that this is not an optimal situation, which we have already pointed out. The matter is under consideration in the VPS legal commission, and we are hoping that a solution is imminent.

Let me now turn to the responsibilities and roles of the central bank and the banks in the payment system.

4. Responsibilities and roles in the payment system

The primary responsibility for the development of the payment system lies with, and must lie with, the banks. Self-regulation is still the rule. However, more complex systems and the potential of new participants increase the need for the public sector to take on partial responsibility. This is the background to the proposal for a new act on payment systems, which is under deliberation in the Storting. According to the bill, Norges Bank is to be granted responsibility for licensing and supervision of interbank systems in Norway. We wish to exercise this responsibility together with the industry and its participants. In the following, I will take a closer look at this interaction, how it may be developed and what our respective roles and responsibilities should be. I will also briefly touch on

¹¹ CLS: Continuous Linked Settlement.

¹² Based on combined average daily turnover of about NOK 175bn in NBO and total collateral of NOK 37bn.

¹³ VPS: the Norwegian Central Securities Depository.

our preparations for the new role as licensing authority, and provide a few opinions on which requirements must be placed on the interbank systems.

4.1. *The importance of self-regulation*

Norges Bank's new licensing and supervisory responsibility will be a supplement to present-day self-regulation. Up to the present, participants have cooperated on standards, rules and routines for security and transaction exchange within the payment system. Agreements on obligations and responsibilities between the participants have assured coordination between banks. Self-regulation has primarily taken place through and between the two banking associations. There is consensus that this model has given rise to substantial results, not least an infrastructure which safeguards important social considerations, while also providing for active competition between participants.

The challenge for Norges Bank will be to fulfil its licensing and supervisory responsibility in such a way that self-regulation may be maintained, but which also allows us to move in the right direction in terms of both risk (reduction) and efficiency in the interbank systems.

4.2. *Norges Bank's responsibility*

That Norges Bank has responsibility in connection with the payment system is not new to this bill. Under the Norges Bank Act, Norges Bank *shall promote an efficient payment system domestically as well as vis-à-vis other countries*. This formulation requires us to balance risk against efficiency.

Norges Bank also serves as settlement bank for the banks. Norges Bank has, as a result of this function, set requirements on the banks and their clearing systems, with particular emphasis on risk-reducing measures.

As a future licensing authority for the interbank systems, we will have to strike a balance between risk and efficiency in our assessment of the systems.

In the following, I will provide a few observations on our new responsibility before commenting on the licensing process itself and the requirements which must be placed on the systems. Given that the law has not yet been adopted, this is of course somewhat speculative.

We are highly aware that the law is to be supplementary to the approach of self-regulation. We must (according to proposition 96, 1998-99 to the Odelsting) *endeavour to promote incentives which enable this approach to be maintained*. At the same time, I showed above that risk in the settlement system can and should be further reduced. This raises the question of whether we have had the proper incentives up to now. It will be a challenge to find incentives which accommodate the industry's need for self-regulation, while leading to a better system - with slightly lower risk.

As licensing authority, we must take a stand as to which systems are to fall under the licensing requirement and which will be exempt (because they have no significance for financial stability). There are several issues which will have to be addressed in this area. Turnover and risk exposure in the systems will be key indicators in our evaluations. NICS is obviously a system which will be subject to the licensing requirement, and we will probably have to focus our evaluations on this system initially. We will also have to define which requirements will apply to the interbank systems and, particularly, what actions must be taken for us to fulfil the law's objective that:

Interbank systems shall be organised with a view to promoting financial stability. Special emphasis shall be placed on countering risks resulting from a deficiency in liquidity or financial strength among participants in the system.

This must be interpreted to mean that the interbank systems should be organised in such a way that they are robust and can withstand stress. They will probably have to satisfy international requirements placed on similar systems. This is not to say that Norges Bank will dictate specific solutions for these systems, but that we will demand that risk be identified and brought under control, and that there be satisfactory solutions for dealing with crisis situations. Several alternative solutions may be possible. The banks will have to decide for themselves within the limits set by sound risk management.

An example may serve to illustrate this. Risk in net settlement arises primarily because of the time-lag between payment and settlement. It has been common up to now for the payee bank to make funds available to its customer - pending the final transfer of funds from the payer bank in the settlement. This practice can lead to large and unforeseen exposure before settlement is finalised. If the payee bank postpones crediting instead, credit risk will be eliminated from the net settlement, but at the expense of efficiency - because the customers receive funds one (or perhaps two) days later. The advantages of delayed crediting must therefore be weighed against the disadvantages. My point here is that the banks themselves must be responsible for this assessment, while we at Norges Bank must evaluate whether the relevant measures are sufficient for promoting the objective of the law.

Let me add that licensing does not mean that Norges Bank has issued a stamp of approval for the technical solutions of the interbank systems. This is also emphasised in the preparations to the law, where it states that ... *the processing of licence applications does not mean that the authorities are responsible for the properties of the system's operation, etc.*

In terms of the licensing process itself, Norges Bank has initiated preparations and we will be ready to receive licence applications when the law enters into force. At the same time, we are aware that the formulation of these applications will take some time, not to mention that any changes in agreements or routines (which become necessary based on legal requirements) may take even more time. However, we will endeavour to facilitate this process. We have already had informal contact with the banking associations concerning this matter and we are prepared to provide counsel and guidance in the further progress of this process.

4.3. The responsibility of the banks

The primary responsibility for the development of the payment system must, as mentioned, lie with the banks. This is in line with the approach of self-regulation. Further development of the common infrastructure, agreements and new payment services must come from the industry itself. In this process, it is important that banks provide more information on risk in the systems, so that an explicit division of responsibilities can be established - both for the individual systems operator and for the participants in the payment systems.

However, the banks' ability to develop efficient and stable payment services is influenced by the regulatory framework established by the authorities. Norges Bank can be of assistance in helping the industry to make the "proper" choices by providing a regulatory framework which maintains competition, while also encouraging that participants are faced with relative prices reflecting the real costs of the systems. Allow me to comment on these factors:

4.3.1. The importance of reliable information on risk and a clear division of responsibility

It is important that the banks provide more information on the actual risk in the payment systems, so that the risk is known and understood (see the second Lamfalussy minimum standard). Our knowledge of settlement risk in the Norwegian system is still insufficient. We know too little about exposure throughout the day, how it arises and the optimum approach to reducing it. We have to gain more insight into these factors, particularly since risk information will be an important element in granting licenses to interbank systems. Moreover, this information is also essential for the correct pricing of risk in payment services.

In this connection, I would also like to point out what it means to *specify the respective responsibilities of the netting provider and the participants* (see the third Lamfalussy standard). I firmly believe that the law's requirement that there shall be "one operator who is responsible for the establishment and operation of the system" may result in the necessary clarification of the division of responsibility in the payment system. For this reason, this requirement is not just a formality, but a real opportunity to create more transparency relative to the present system.

4.3.2. *The importance of “proper” incentives*

It is important to have incentives which reflect the real costs connected to various payment services if participants are to come up with their own solutions balancing risk against efficiency. A pertinent example may be the regulations concerning loans in the central bank. It is a basic responsibility of the banks to ensure that liquidity is sufficient to cover settlement. The main rule for settlement in Norges Bank is that there shall be adequate cover in the account. If, for one reason or another, a bank does not have sufficient cover, it must turn to the market for financing. If necessary, the settlement should in part or in its entirety be delayed so as to give the institution enough time to obtain sufficient liquidity.

Too easy access to loans in the central bank in situations where financial stability is not at risk involves costs in that it weakens banks' incentives to address elements of risk in the payment systems and presents the customer with prices which do not reflect the risk attached to various payment services.

4.3.3. *The importance of competition*

The stipulated regulatory framework affects competition, such as who is allowed to initiate new payment services. Competition is important, both for improving the use of known, reliable payment services and for the development of new services.

At the same time, we know that competition may come at the expense of efficiency if it leads to a large number of services which are not coordinated. Maintaining a coordinated payment system while also ensuring a level of competition which can sustain and develop dynamics and innovation can be a difficult balancing act. As mentioned, it can be said that our experiences in Norway have been fairly good. In our view, coordination that promotes positive network effects should be encouraged. Competition considerations should primarily be safeguarded through objective and publicly known criteria for access to the network which makes it possible for new competitors to become established within the common infrastructure.

How shall we assess new participants wishing to establish proprietary systems alongside the common infrastructure? This matter was discussed by the Banking Law Commission - which provided for the possibility of institutions other than banks and other financial undertakings to establish systems for payment services if licensed. The present bill does not address this question. It will be reverted to at a later time when the formulation of the regulation of institutions is addressed.

Norges Bank has provided its view on these matters in earlier submissions to the Banking Law Commission's fourth report. At that time, we supported the Commission's proposal for opening for new participants in this area, by pointing out that such new systems for payment services will not be based on account agreements. Therefore, these “deposits” cannot be used as general means of payment and thus will pose no threat to the current deposits-based payment system.

Nothing has happened since to change our point of view. On the contrary, we believe that heightened competition will give us a better opportunity to test various technological solutions. This will certainly make it possible to establish new settlement and clearing systems alongside the present infrastructure, but it cannot be assumed that this will be a disadvantage to the user. If such systems - contrary to expectations - should gain ground, then it is likely that the question of licensing with a view to ensuring equal framework conditions will quickly be addressed.

Our experience from the financial industry as well as from other industries has shown that intensified competition results in improved and lower-priced products - for the benefit of the customer. There is no reason that it should be any different in the area of payments.

One challenge for the authorities will be to formulate a regulatory framework which achieves a balance between the positive sides of coordination and the need for competition and innovation. The challenge for the banks will be to take advantage of the leeway within this framework in order to develop systems which are beneficial to the customer and which ensure a healthy and competitive business arena for Norwegian financial institutions.

5. Conclusion

It is my foremost impression that we, in Norway, have a fairly efficient payment system, but that it is not quite as robust as we would like. There is room for improvement. For interbank systems, I particularly see possibilities in the following areas:

- Review and “streamlining” of the retail netting system
- Limit the practice of early crediting
- Address foreign exchange settlement risk
- Improve the use of collateral

As for the retail system, we already have a very efficient system in place, and here competition will push new products and services.

As I pointed out in my introduction, the transition from cash payments to deposits has yielded substantial efficiency gains, but has also led to new forms of risk. As such, the public’s choice of means of payment and payment instrument affects both risk and efficiency in the payment system. It will also be interesting to see the effect of real-cost pricing on the public’s use of cash.

Experience has shown that the public’s choice is affected by relative prices. So far, we have had positive experiences with real-cost pricing in Norway. The usual cost concept is a little too narrow, however, and it may be time to take a closer look at “risk adjusted real-cost” prices. Different payment systems give rise to different risk in the payment system. This relationship is not always reflected in the prices charged customers. Often this is due to a lack of information about what the actual risk is to the customer, the bank and the entire payment system.

In this respect, the banks have an important responsibility to identify and manage the risk in the payment system. Only then will it be possible to say that the risk is “known and understood”. Norges Bank also has a responsibility in this area, such as establishing a regulatory framework that provides better incentives than what the present system offers.

We all have a common goal: a more efficient and secure payment system.