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DRAFT LEGAL GUIDE ON ELECTRONIC FUNDS TRANSFERS

CHAPTER ON
FINALITY OF FUNDS TRANSFER

Report of the Secretary-General

(continued)

CONTENTS

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Introductory Note

1. Finality of a funds transfer is often considered to be one of the important unifying concepts in the law of funds transfers. In many legal systems, important legal consequences are considered to occur at the time when the funds transfer becomes final. For this reason, concern has been expressed in banking and legal circles as to whether the time when an electronic funds transfer becomes final is the same as or different from the time when a paper-based funds transfer becomes final. Furthermore, discussions of international funds transfers have often suggested the importance of finding a common understanding as to when an electronic funds transfer becomes final.

2. A comparison of the concept of finality in a number of legal systems shows that the concept is imprecise. Although many legal systems refer to the finality of a funds transfer as occuring at a single point of time, there are several points of time when various aspects of the funds transfer may become final. A funds transfer often becomes final as to one or more of the banks implementing it at a different time from that when it becomes final as to the transferor and transferee.

3. This chapter is drafted on the basis that each of the legal consequences often associated with finality must be treated as a separate problem and the time at which that legal consequence occurs is determined by considerations relevant to it. Furthermore, it may be suggested that in the preparation of new rules to govern electronic funds transfers, and especially rules governing the relations between banks in domestic or international funds transfers, a similar approach would be desirable. Therefore, when a funds transfer is said to be "final" in this chapter, it should be understood to mean no more than that a certain number of legal consequences may have occurred in respect of that funds transfer, but that they are not necessarily the same as the legal consequences which may occur in any particular legal system.

A. When funds transfers become final

4. The time when a funds transfer is final, or when certain legal consequences occur, is normally associated with a specific action of a bank. There is a long list of actions by banks which are considered or which might be considered to make a funds transfer final in various countries. In the following paragraphs are discussed some of the more important of those actions. Other actions are usually variations of those discussed.

1. Credit transfers

(a) Debit to the account of the transferor

5. In one country (France) it has been held that one-bank and two-bank credit transfers are final, at least to the extent that the funds transfer instruction can no longer be withdrawn by the transferor, when the transferor's account is debited. It has been suggested that the funds transfer should also be considered final where insolvency proceedings are subsequently commenced against the transferor. The doctrinal explanation for legal finality of a credit transfer upon debit of the transferor's account is

that the transferor thereby loses ownership of the funds. To the extent this rule is generalized to other consequences of finality, it leads to the result that in a one-bank transfer at a bank with multiple branches or in a two-bank transfer, the funds transfer could become final several days before the transferee's account was credited in fact.

6. However, no country is known to apply this reasoning to three-bank transfers. A reason often given in France for the different treatment is that in a three-bank transfer the funds are considered to be in the hands of an agent of the transferor until the account of the transferee bank has been credited by the intermediary bank and, until that moment, the transferor can revoke the agency.

7. In many other banking systems it is not acceptable for funds transfers to become legally final for any purpose before the transferee bank has had the opportunity to exercise its judgment as to the acceptability of the settlement offered. In some countries the failure of a bank to settle for a domestic funds transfer may be a distinct possibility and international funds transfers by their very nature raise the possibility that foreign transferor banks may be unable to fulfill their obligations. However, the settlement question need not affect the question of finality where the structure of the banking system precludes the possibility that transferee banks will not receive settlement, and particularly where all banks are owned by the State.

(b) Credit to the account of the transferee bank

8. If the credit transfer between the banks themselves is final when the transferee bank's account has been credited by the transferor bank or intermediary bank or has been credited at or through a clearing-house, and if the credit can no longer be reversed either by a withdrawal of the funds transfer instruction or by the sending bank's failure to settle, then the funds transfer may be considered to be legally final as to the transferor and transferee at the same time, i.e. when the transferee bank's account has been credited. In such a case the subsequent crediting of the transferee's account would have no effect on finality of the funds transfer. A somewhat similar result has often been reached in respect of paper-based transfers where the sending bank settled with the transferee bank by enclosing with the funds transfer instruction its own irrevocable commitment in such a form as a banker's cheque or banker's payment.

(c) Notice of credit to the account of the transferee bank

9. The above considerations apply if the credit transfer between the banks is final when notice of the credit to the transferee bank's account has been given to it and, thus, the funds transfer would be final as to the transferor and transferee when the notice is given to the transferee bank.

(d) Transferee bank decides to accept credit transfer

10. In many common law countries a credit transfer may become final at the moment the transferee bank decides to accept the credit transfer. This decision can be manifested by any act which demonstrates the transferee bank's intention and will be based upon its assessment of the reliability of the settlement offered in support of the credit balance it is asked to create.

11. Historically this rule had the advantage that the funds transfer became final at the earliest possible moment after the transferee bank had received the credit transfer instruction and had had the opportunity to perform the necessary verifications. As a result it may have been the earliest point of time acceptable for finality of a funds transfer in which the transferee bank received the funds transfer instruction from a foreign country. The rule has the disadvantage that in case of dispute it calls for a judicial determination whether a particular employee of the bank had made a subjective judgment by a particular point of time, a determination which can be made only by the review of specific facts in each case. The rule, which was first formulated in respect of the honour of bills of exchange and cheques in an earlier era, may be less applicable to the finality of funds transfers in a period of batch-processing or on-line telecommunications.

(c) Entry of credit to transferee's account

12. In routine batch-processed credit transfers no conscious decision to honour is made by the transferee bank and the first objective act which can be relied upon to occur is the credit entry to the transferee's account. It is that objective act which is considered to make the funds transfer final in many legal systems.

13. However, although the entering of the credit to the transferee's account is an objective act, the point of time at which it occurs is often not determinable. When account records are kept in visual form, the order in which debits and credits are entered is discernible, even though the exact time at which they are entered may not later be determinable. When individual funds transfer instructions are received over computer-to-computer telecommunications and are released for posting after verification, the time of posting can be stored in the record of the transaction. However, individual paper-based and electronic funds transfer instructions processed in batch-mode are usually not time-stamped. Although time-stamping of the individual instruction is technically feasible, it may be questioned whether it would be a desirable requirement simply for the purposes of determining when the funds transfer became final. The same effective result might be achieved by considering the funds transfer final when the batch is introduced into the machine for processing or when it is taken out of the machine after processing, actions which are likely to be kept in a data-processing log.

14. Overnight posting with an entry date of the following day may raise a question as to whether the posting of a credit outside normal working hours legally takes effect immediately or only at the opening of business on the next banking day. If this is an issue in any legal system, it will become more acute as banking moves towards a twenty-four hour day, not only in respect of international banking but also in respect of consumer banking through the full array of customer-activated terminals.

15. Posting with an interest date one or more days after the entry date raises a different issue. In many civil law countries once the credit is posted the funds transfer is final and the transferee has an unqualified right to withdraw the funds. However, he does not earn interest on the credit until the interest date and, if the funds are withdrawn before the interest date, he would pay a fee equivalent to the prevailing rate of interest on loans from the date of withdrawal to the interest date. Therefore, in these countries, transferee banks which receive a credit transfer before the pay date i.e. the

date specified by the transferor on which the funds are to be freely available to the transferee, may enter the credit immediately with an interest date which is the same as the pay date.

16. In common law countries a different result is likely. Where transfers show a future pay date, it is common practice to delay entry of the credit to the transferee's account until the day indicated, although the transaction may be entered into the transferee bank's computer at an earlier time for entry to the account on the pay date. Therefore, if finality is dependent upon entry of the credit to the transferee's account, the funds transfer would not become final until the pay date and the funds would not be available until then.

(f) Entry of credit subject to reversal

17. In some countries it is an acceptable banking procedure for banks to enter debits and credits to the accounts of their customers subject to reversal for a period of time. Although the procedure is followed in several countries, its most well-known use in respect of international funds transfers involves credit transfers made through CHIPS and similar on-line electronic clearing-houses in the United States with end-of-the-day (or next day) net settlement. Since the CHIPS rules anticipate the possibility that one or more banks may fail to settle for their net debit balance, many banks participating in CHIPS provisionally credit their customers' accounts with incoming credit transfers as those transfers are received over the CHIPS system. However, the credits are subject to reversal if there should be a failure to settle. The provisional credits and the credit transfers become irrevocable when settlement is final. In other types of credit transfers where reversal may be allowed for a wider range of reasons, a provisional credit to the transferee's account may become irreversible when the time has passed during which the system allows reversal of the credit. Although irreversibility and finality are not synonymous terms, in these cases the funds transfer is usually considered to become final when the credit entry becomes irreversible.

(g) Notice to the transferee

18. In a number of legal systems a credit transfer is deemed to be final when a notice of the credit is given to the transferee. This is seen as the moment when the information that the transferee's account has been credited passes out of the control of the bank.

19. The rule is based on a practice of sending a notice of the credit at the end of the day or on the following day for every credit entered to a customer's account. However, if customers can enquire by on-line customer-activated terminals as to their account balance and recent account activity, application of this rule might lead to the conclusion that the credit was final as soon as it was posted to the account. In this case, there would no longer be a need to send a notice of the credit to the transferee for the purpose of making the funds transfer final.

(h) Payment in cash

20. When the transferee bank is to hand over cash to the transferee at such a place as his domicile or place of business, as is the practice in many consumer oriented credit transfer networks and especially those operated by

postal services, the funds transfer may be final upon the handing over of the cash. Therefore, it would seem that the funds transfer would not be final if the transferee refused to take the cash. The same result may occur when the transferee bank is to hold the funds for delivery in cash or equivalent to the transferee upon identification.

2. Debit transfers

21. Considering that debit transfers become final when the transferor bank takes the relevant action, the same general set of possible points of time at which a funds transfer becomes final exists in respect of debit transfers as exists in respect of credit transfers. That is, the funds transfer may become final when the transferor bank decides to honour the debit transfer instruction, when the debit to the transferor's account is entered, when a notice of the debit is given or when, subsequent to the posting of the debit to the account, the time allowed for reversal of the debit has passed.

22. There is, however, a major qualification to the general equivalence between the points of time when a debit transfer and a credit transfer may become final. A debit transfer is not final as a result of the crediting of the transferee's account. On the contrary, if the transferee's account is credited when the debit transfer instruction is first processed by the transferee bank, e.g. when a cheque is deposited, that credit will normally be provisional subject to reversal if the instruction is dishonoured. This result occurs even in legal systems which would hesitate to permit a transferee bank to reverse a credit to the account of a transferee in a credit transfer.

B. Relationship between finality of transfer between customers and finality of transfer between banks

23. A transfer of funds for the account of customers at different banks is implemented by a transfer of funds between the banks. Where settlement for a debit transfer is by means of provisional debits and credits, the inter-bank funds transfer is final when the funds transfer between the two customers is final. Where settlement is by means of a separate funds transfer from the transferor bank, the finality of that settlement transfer may be divorced from the finality of the customer transfer. However, the legal system may provide that the customer transfer is not final and may be reversed if the settlement does not become final.

24. The finality of the credit transfer between the banks, as distinguished from the transfer between the customers, creates significant theoretical and practical difficulties. Although the theoretical difficulties are the same for credit transfers handled between banks in batches (usually small in value per instruction) and credit transfers handled between banks individually (often large in value per instruction), the practical difficulties exist almost exclusively with transfers handled individually.

25. Credit transfers handled individually, and especially large-value international transfers, may require the involvement of as many as six or seven banks. These banks may all be in a row, as in figure 4, or some of them may be reimbursing banks. In a credit transfer each segment takes on most of the characteristics of a separate funds transfer between the pair of banks

involved in that segment. In ISO/DIS 7982 this segment is referred to as a "funds transfer transaction". Each funds transfer transaction requires a separate credit transfer instruction and a means of settlement. However, the inter-bank rules governing the finality of the funds transfer transaction between the banks do not purport to be the rules governing the funds transfer as a whole of which the transaction is a segment.

26. The inter-bank rules governing the funds transfer transaction may be found in a bilateral agreement between the two banks, but they are often found in general agreements among banks, or in clearing-house or other network rules. These rules apply without regard to whether the sending bank is acting on its own behalf in making a payment (e.g. making a payment in connection with a foreign exchange transaction for its own account) or to implement the instruction of a non-bank customer of the sending bank, or of one of its correspondent banks. Similarly, the rules apply whether the credit is to be applied by the receiving bank to an obligation of the sending bank or of an earlier bank in the chain or whether the credit is to be entered to the account of a non-bank customer of the receiving bank or to the account of one of its correspondent banks, perhaps in turn for credit to the account of one of that bank's customers. The original source of a credit transfer, the ultimate transferee and the business purpose of the transfer affect the content of certain data fields in the funds transfer instruction; they do not, however, affect procedures for the funds transfer transaction, and especially the rules governing its finality.

27. As noted in paragraphs 8 and 9, the finality of the credit transfer between the transferor and transferee could depend on the finality of the funds transfer transaction between the banks. However, in many legal systems the funds transfer would not be final between the transferor and transferee until the appropriate act had been taken in respect of the transferee, e.g. sending a notice of the credit to the transferee. Thus, there might be a period of time when the funds transfer transaction was final between the two banks but the funds transfer was not final between the transferor and transferee. In other legal systems the funds transfer transaction between the two banks might not be final until the funds transfer between the transferor and transferee was final under the appropriate rule.

28. When there are three or more banks, the dichotomy between the funds transfer from transferor to transferee and the funds transfer transaction between each pair of banks becomes both clearer and more important. A three-or-more-bank large-value funds transfer often passes through an electronic clearing-house which has clearly defined rules as to the time when the transfer is final as regards the sending and receiving banks. When the sending and receiving banks are both intermediary banks in regard to the customer transfer, that intermediary segment of the funds transfer may be final even though the funds transfer must pass through one or more additional banks before it arrives at the transferee bank.

29. The finality of a funds transfer transaction between intermediary banks could be expected to terminate the right of the sending bank in that transaction to withdraw its funds transfer instruction. Therefore, once that funds transfer transaction had been completed, the sending bank's subsequent receipt of a notice that the transferor had withdrawn his funds transfer instruction would be too late to affect the transaction. For the same reason, notice of the death of the transferor, commencement of insolvency proceedings

against him or attachment of his account would also be too late. This suggests that the receiving bank in the funds transfer transaction might also have no obligation to pass to its credit party any such notice it may have received. If this is the case, the legal effect of these various notices in respect of the funds transfer as a whole might also be terminated by the finality of an intermediate funds transfer transaction. In order to overcome this result, the transferor bank or sending bank might be required to send the notice directly to the transferee bank.

30. The early finality of a funds transfer transaction has the further effect of protecting the funds transfer process from the failure of an intermediary bank to settle for the transaction. This matter is discussed below in paragraphs 97 to 99 and in the Annex.

C. Changes in technology affecting finality

31. Even before the advent of modern electronic funds transfer techniques, changes in the technology used to process paper-based funds transfer instructions had affected the rules governing the finality of funds transfers.

1. Individual processing of paper-based instructions

32. The traditional rules governing finality were developed in the context of individual processing of paper-based funds transfer instructions. The rules tended to be based on four factual assumptions which were more or less common to the majority of banking systems. These factual assumptions were that:

- Account records were kept in tangible and visible form at the bank or branch at which the account was maintained. For purposes of the rules governing finality (as well as the rules governing the period of time within which the bank was required to act), the relevant actions took place at that branch.

- Each funds transfer instruction was processed both at the originating bank and at the destination bank as an individual item and not as part of a batch.

- The flow of work caused instructions to be verified and to be posted in the order they arrived at the branch and to be processed in a standard way culminating in posting the accounts and sending of notices, if any. At any given moment it was possible to know what verifications or decisions had been made with respect to a given funds transfer instruction and by referring to the account record it was always possible to know the order in which the instructions had been received and honoured.

- The volume of transactions was small enough to permit taking all the steps necessary to honour or dishonour the debit and credit transfer instructions on the day they were received. Clearing-house rules often required any return items, e.g. dishonoured debit transfer instructions, to be returned on the same day, and rules on finality often permitted the reversal of entries on that same day, but not later. A cut-off time was sometimes established for instructions received too late in the day to permit processing on that same day. In such cases instructions received after the cut-off time could be treated as having been received the next day.

2. Batch-processing

33. The use of batch-processing techniques changes a number of the factual assumptions on which the traditional rules on finality were often based:

- In order to gain the operational efficiencies possible in batch-processing large volumes of transactions, centralized data processing facilities have been created. Account records are no longer kept at the individual branches of a bank. Performance of the relevant acts leading to honour or dishonour is often divided between the data processing centre and the branches.

- In order to create homogeneous batches with the necessary characteristics, instructions may be collected and transported to the data processing facility periodically, in some cases only at the end of the day. Funds transfer instructions which are to be executed on a fixed day may be sent in advance of the entry date to an automatic clearing-house or transferee bank for advance processing. There is no longer a fixed relationship between the point of time when a specific funds transfer instruction is received by the bank, when the crucial decisions are explicitly or implicitly made to honour it, when the entries in the account records are made and when the funds transfer becomes effective. Rules on finality which were based upon that fixed relationship become difficult to apply in practice.

- Batch-processing is designed for the inexpensive processing of large volumes of transactions rather than for their expeditious processing. Funds transfers which are intended to be executed on a particular day may be processed in advance by the transferor bank, automatic clearing-house or transferee bank, sometimes many days prior to the effective date. A funds transfer instruction received during the day for current action may be processed that night. Only on the following day would the banking officials responsible for the customer accounts see the print-outs showing the record of transactions and new account balances. Rules on completion which anticipate all steps being taken on the day of receipt may, therefore, be difficult to apply with batch-processing.

3. On-line data processing

34. The introduction of on-line data processing restores some aspects of the previous routines whereby instructions were processed individually. When a bank processes fund transfers on-line, its computer verifies the authenticity of the instruction and the status of the affected accounts and concurrently enters debits and credits, whether provisional or not. As a result of on-line data processing:

- The on-line entry of debits and credits to accounts from multiple branches, as well as from off-premise locations, frees the rules on finality (and of time-limits) from the previous constraints linked to the physical location of the account record.

- Individual funds transfers are processed within the bank and the entries are made as individual items without waiting for the creation of batches with appropriate characteristics or for the physical

transportation of the instructions to the data processing centre. The account records indicate permanently the order in which the on-line transactions took place, including the exact time if that is desired.

35. Where an on-line data processing system provides for the entry of the debits and credits directly into the relevant accounts, the factual situation in respect of the rules on finality would seem to be the same as if the entries had been made in the traditional fashion on paper account records, i.e. the determination as to whether the funds transfer was final for any purpose would depend on whether under the relevant rule the funds transfer was final on entry of the debit or credit, or at a different time.

36. In other cases on-line data processing systems enter debits and credits into provisional accounts. These accounts may subsequently be consolidated with the regular accounts when inter-bank settlement has been completed or at any other time deemed appropriate by the bank. In the meantime, the computer can be programmed to show the provisional account rather than the regular account in case of enquiry about account balance or account activity, so that the existence of provisional accounts may not be readily apparent even to many employees of the bank. However, until the debits and credits are consolidated into the regular accounts, the funds transfer may not be final under rules which are based on the time of entry.

37. A mixture of on-line and batch-processed entries makes it difficult to establish priorities between different funds transfers on the basis of the time of entry of the debits or credits. It may be further noted that funds transfer instructions which are processed on-line by the originating bank may nevertheless be transmitted off-line in batches to another bank or to an automatic clearing-house. In this case the receiving bank would probably process the instructions in batch-mode.

4. Customer-activated terminals

38. Off-line customer-activated terminals store the transaction data on computer memory devices for later batch-processing. In most cases the normal rules on finality applicable to batch-processed funds transfer instructions would be appropriate. However, the dispensing of cash from a cash dispenser, whether on-line or off-line, would probably be considered to be final at the moment the cash was withdrawn. In this case the debit to the account of the customer would constitute only an implementing act of record-keeping. This would be in accord with the rules governing time of finality of cheques or credit transfer instructions which are honoured in cash.

39. Although on-line point-of-sale systems permit the immediate entry of the credit to the merchant's (transferee's) account and debit to the purchaser's (transferor's) account, some point-of-sale systems which permit the on-line verification of the authenticity of the funds transfer instruction and the transferor's account balance delay debiting the transferor's account for one or more days to allow the transferor the same delay in debit which would previously have occurred if he had given the merchant a cheque. The credit to the merchant may also be delayed for a period of time, which may be the same as for the debit to the transferor. Thus, in most legal systems application of the usual rules would lead to the conclusion that the funds transfer was not final until the relevant entry date.

40. If only the debit was delayed, under certain rules on finality the funds transfer would be considered to be final if it was a credit transfer but not if it was a debit transfer. The opposite result would occur if only the credit was delayed. Determination as to whether the funds transfer was a debit transfer or a credit transfer might in turn depend on whether the funds transfer instruction from the point-of-sale terminal passed first through the purchaser's bank (credit transfer) or through the merchant's bank (debit transfer). However, if the funds transfer instruction went to a switch which simultaneously routed the credit to the merchant's bank and the debit to the purchaser's bank, the funds transfer could no longer be classified as either a debit transfer or a credit transfer, and this analytical basis for determining finality would not be available.

5. Guarantee of honour by transferor bank

41. Credit card plans, guaranteed cheque plans such as Eurocheque and electronic point-of-sale systems with delayed debit normally provide that, if the required procedures have been followed, the transferee (merchant) will be credited for the amount of the debit transfer instruction even though the instruction may turn out to be fraudulent. These procedures include a requirement that the transferor properly identifies himself and may include a requirement that the transferee (merchant) receives an authorization from the transferor bank (or from the relevant network) before proceeding with the transaction.

42. Guarantee of honour creates a legal hybrid in the law of funds transfers. A direct result of the guarantee is that the transferor bank is irrevocably obligated under the contractual arrangements to the transferee and to the transferee bank to honour the debit transfer instruction when it is presented. A necessary additional element in the contractual arrangements is that the transferor relinquishes any right he would otherwise have under the applicable law of funds transfers to withdraw the debit transfer instruction. Where consumer legislation protects the right of the transferor to withdraw the debit transfer instruction for some period of time, thereby for that period of time precluding the transferor bank from irrevocably debiting his account in respect of that instruction, the transferor bank's guarantee to the transferee and transferee bank must necessarily be similarly limited.

43. However, where the transferor bank's guarantee is complete and irrevocable, the legal situation could be considered to be the equivalent of that following acceptance of a bill of exchange (or certification of a cheque, in those countries where certification is permitted). Furthermore, the legal situation would be similar to that found in many legal systems where a funds transfer is final at the time when the transferor bank has irrevocably committed itself to settling with the transferee bank by, for example, issuing to the transferee bank its own irrevocable funds transfer instruction such as a banker's cheque or banker's payment. If this comparison is made, other consequences associated with finality may be thought to occur arising out of a guarantee of honour, such as that the amount in the transferor's account subject to attachment would be reduced by the amount of the guaranteed transfer, even though the account had not yet been debited.

6. Microcircuit cards

44. Since microcircuit cards are not yet in general use for funds transfers, the effect of this new technology on finality rules must be purely speculative. However, it would seem that if the cards are used merely to give a more secure means of identifying the transferor than is currently available, the law governing funds transfers, including the finality rules, will not be directly affected. This would be true whether the funds transfer was on-line or off-line. Similarly, if an off-line system is used and the card is programmed to authorize a given amount of purchases (undoubtedly with a guarantee of honour by the transferor bank) but the debit to the account of the transferor, and the credit to the account of the transferee, are entered only after the purchase has been made, the finality rules would seem to be those otherwise applicable where there is guarantee of honour.

45. A third funds transfer procedure using microcircuit cards raises more difficult questions in regard to the appropriate finality rules. Under this procedure the card is charged with a certain value by the transferor bank. The transferor may remit cash to the transferor bank, but usually his account is debited for that amount at the time when the card is charged. As the card is used to purchase goods or services, the amount of value available on the card is reduced by the merchants' point-of-sale terminals. The transferee (merchant) is credited by the transferee bank either on-line or, more likely, off-line for the amount of the purchase. Under this procedure, therefore, the entire funds transfer consists of two stages, the charging of the card with value and the use of the value in the card to purchase goods and services. These two stages may be viewed as two separate transactions or as one transaction taking place at two different times. Under either view the credit to the transferee's account would become final at the same time, i.e. only at the time of or after the purchase of the goods or services. However, the debit to the transferor's account could be considered final either at the time when the card was charged with value and the account was debited or at the time when the card was used to purchase the goods or services.

46. On the one hand the debit to the transferor's account could be considered to become final without regard to his use of the card if the charging of the card by the transferor bank and the related debiting of the transferor's account were considered to be the equivalent of a withdrawal of cash by the transferor or of a sale to him of traveler's cheques or non-monetary tokens for use in public transportation or public telephones. Although the transferor retains the same amount of monetary value, it is in a different form.

47. On the other hand the card could be considered to constitute an account of the transferor with the transferor bank in a special form. If this view of the transaction is taken, the card could be considered to constitute either a separate account or a special form of the original account. If the card constitutes a separate account, the debit to the original account would become final upon the charging of the card. The debit to the account contained in the card arising out of the purchase of goods or services would probably become final at the time of purchase when the value remaining in the card available for use by the transferor was reduced by the point-of-sale terminal. If the card constitutes a special form of the original account, the debit to the original account would become final at the time of purchase. In

either case the unused value in the card would constitute a claim of the customer against the bank. It would seem that the bank could exercise set-off for its claims against that value. Furthermore, that value would seem to be included in any attachment of the customer's claims against the bank and the bank would, therefore, be obligated to take steps to prevent further use of the card.

7. Computer-to-computer telecommunication of funds transfer instructions

48. The fact that funds transfer instructions are transmitted between banks by computer-to-computer telecommunication does not by itself affect the appropriateness of rules on finality. However, the increasing availability and decreasing cost of computer-to-computer telecommunication has been one of the causes of the large increase in the volume of funds being transferred, especially by the large-value networks. Customer use of cash management services, for example, creates funds transfers that would not have occurred at an earlier time. As a result, there is increased risk to the banking system and to the entire economy arising out of the large number of funds transfers which are not yet final. Some measures being considered to face this problem are discussed in paragraphs 97 to 99 and in the Annex to this chapter.

D. Consequences associated with finality

1. General rules giving priority to funds transfer

49. Several general rules give the transferee rights to the credit arising out of the funds transfer prior to the transfer becoming final. The most inclusive of those general rules is the French rule that the issuance of a cheque transfers the provision to the holder of a cheque (i.e. the transferee). As a consequence of this rule the transferee normally prevails over a third party claimant whose claim against the transferor's account arose after issue of the cheque. However, even though the transferee prevails over third party claimants, the funds transfer itself is not final until the cheque has been honoured.

50. A general rule of more limited application is that the transferor bank or an intermediary bank must be allowed to complete the funds transfer if it has irrevocably committed itself to honour the transferor's instruction. This may occur, for example, by the bank accepting a bill of exchange (or certifying a cheque if permitted by the relevant law). It may also occur when a transferor bank settles for a funds transfer by issuing its own irrevocable promise to pay, such as a banker's cheque or banker's payment. The policy that lies behind this rule is that the bank which is committed to honour the funds transfer instruction or to settle for it should be able to reimburse itself from the transferor's account in spite of the intervening creation of third party rights in the account. This policy would also seem to be applicable to funds transfers made through a clearing-house if the sending bank guarantees settlement to the receiving bank and to guarantee of honour plans for debit transfer instructions, as discussed in paragraphs 41 to 43.

2. Specific conflicts in priority

(a) Effect on funds transfer of legal rights of third persons

51. The legal rules governing the effect on the transferor's account of his death, the commencement of insolvency proceedings against him or attachment of the account are largely or completely found outside the law governing funds transfers. These legal rules create rights in third persons which may compete with the rights claimed by the transferee. As a result, it is often difficult to reconcile the law governing the third party right and the law governing the funds transfer itself.

52. The conflict in priority between the third party right and rights arising out of the funds transfer can arise in several ways. The most direct source of conflict is between the third party claimant and the transferee who claims that the funds transfer was final before the third party right arose. If the transferee has already used the credit, the claim of the transferee may be asserted by the transferee bank. In many cases, the immediate conflict is between the third party claimant and the transferor bank, which claims that the third party's rights in the transferor's account arose after the credit had already been transferred from that account. This is of particular importance to a transferor bank which has little likelihood of recovering the credit from the transferee.

(i) Death of the transferor

53. In some legal systems the death of the transferor may terminate all authority to act on his behalf or under his instructions at the moment the death occurs. Although this rule is often explained as an automatic termination of the agency relationship between the transferor and the bank or banks implementing the funds transfer, it would also seem to be applicable in those legal systems where the bank or banks carrying out the funds transfer on the transferor's instructions are not considered to be his agent. However, in many legal systems the bank's authority is terminated only by notice to it of the death. Furthermore, since the transferor is solvent at the time of death in the vast majority of cases and the funds transfer is usually for the purpose of discharging an obligation which would need to be discharged even after his death, some legal systems permit the transferor bank to continue to honour the transferor's funds transfer instructions for a period of time even after notice of his death unless ordered to stop doing so by an heir or, in some other countries, any person claiming an interest in the account.

(ii) Commencement of insolvency proceedings against transferor

54. The commencement of insolvency proceedings against the transferor creates a more complex legal situation than does his death because of the wide variety of rules governing insolvency in different countries. This causes particularly difficult legal problems for a transferee who is resident in a country foreign to the place where the insolvency proceedings against the transferor are taking place. However, one element in common with the legal situation caused by the death of the transferor is that the commencement of insolvency proceedings normally terminates the transferor bank's authority to honour any funds transfer instructions which have not already become final. Because of the strong policy to preserve the insolvent's remaining assets for

distribution to creditors in accordance with the statutory priorities, in some countries the transferor bank's authority to honour funds transfer instructions terminates when the insolvency proceedings are begun, even though the bank may have no notice of those proceedings.

(iii) Legal incapacity of transferor

55. A transferor may not yet have legal capacity to issue funds transfer instructions or may lose legal capacity because of the conviction of certain crimes, declaration of mental incompetence, declaration of receivership or for similar reasons. Where the legal incapacity arises out of minority, declaration of mental incompetence or the like, the desire to protect the incapable person from his own acts may require the reversal of funds transfers which otherwise appear to be final. Where the transferor is legally incapable because of conviction of a crime, it would seem incongruous not to allow the transferee to benefit from a funds transfer in process.

(iv) Attachment of the transferor's account

56. Attachment of the transferor's account normally takes effect upon notice to the transferor bank. Except in the case of the issue of a cheque in France by which the provision is transferred to the holder of the cheque, the attachment would normally take priority over a debit transfer which had not become final before the legal process took effect. However, where the debit to the transferor's account is first entered provisionally, attachment of the account during the period of reversibility may be too late even though the funds transfer may not yet be considered final.

57. In the case of a credit transfer, in some legal systems the legal process would be too late if the transferor's account had already been debited. However, in other legal systems, since the credit transfer would not be final upon the mere entry of the debit to the transferor's account, the credit might be considered still to be subject to the legal process. In such a case, the transferor bank would have to use reasonable efforts to stop the completion of the credit transfer by notifying the transferee bank of the legal process.

58. Difficult questions may be raised as to the transferor bank's obligation for a credit transfer made through an intermediary bank. Since the transferor bank knows the name of the transferee bank and all the details of the transfer, it could send the notice directly to the transferee bank. However, since there is no direct relationship between the transferor bank and the transferee bank when intermediary banks have been used, it may not be clear what obligation the transferee bank would have to act upon the notice given by the transferor bank. These problems would be particularly difficult in the case of an international funds transfer where the transferor bank and transferee bank may be subject to different rules on finality and where intermediate portions of the funds transfer may have become final under the rules governing funds transfer transactions between the intermediary banks.

59. As a result it could be expected that the transferor bank might have to make reasonable efforts to stop the completion of the funds transfer or, if no such efforts were made, to show that they would have failed.

(v) Withdrawal of funds transfer instruction by transferor

60. In accordance with general legal principles a person may withdraw (or revoke) instructions or authority to act which he has given to another until such time as the instructions or authority have been acted upon. Under these principles, in some countries the transferor may withdraw from the transferor bank the authority to honour a funds transfer instruction up to the moment the transfer is final. However, the authority or instructions may be irrevocable if they have been expressly stated to be so. Where the agency is for the benefit of a third person or of the agent himself, the right of the principal to withdraw the authority to act may be limited so as to protect the agent or third person. Therefore, since a standing authorization to debit may be for the benefit of the transferee, the transferor might need the agreement of the transferee to withdraw the authorization or the transferee may need to be given adequate notice so as to be sure he can receive the money due to him. When the bank itself is the beneficiary, the authority to debit may be irrevocable without the agreement of the bank.

61. The withdrawal of a funds transfer instruction by the transferor creates many of the same problems for the transferor bank as does the withdrawal of authority to honour the funds transfer instruction by reason of the appearance of third party rights. In both cases the transferor bank must notify its own personnel of the withdrawal of authority and, in the case of a credit transfer, it may be required to attempt to notify the transferee bank not to credit the transferee's account.

(b) Notices given to a bank

62. Rules which terminate the bank's authority to act upon notice to the bank may also indicate the form of the notice and the information which must be contained in it, the person to receive the notice for the bank and whether the notice has an immediate effect upon the bank's authority to act or whether the bank has time to communicate the notice internally.

63. In some legal systems an oral notice of death, of the commencement of insolvency proceedings or of the withdrawal of a funds transfer instruction may be sufficient to require the bank to stop any funds transfers in progress. The oral notice may be valid for a limited period of time and be subject to confirmation by a later written notice. In most legal systems a written notice of withdrawal of a funds transfer instruction may be informal and may be communicated by telecommunications. Attachment of an account would always be in a formal legal writing.

64. A notice given to a transferor bank that all funds transfers by a particular transferor are to be stopped need only indicate accurately the account or accounts affected by the notice. In the case of a credit transfer where the transferor bank may be required to notify other banks of the death, commencement of insolvency proceedings or attachment, the transferor bank itself would have all of the relevant information.

65. A notice by a transferor withdrawing only one or more specific funds transfer instructions must be more precise since it must describe the affected funds transfer instruction or instructions with reasonable precision as well as identifying the account. This requirement can cause serious difficulties where large numbers of instructions are issued against the account or where

the account records are kept on computers. A notice containing a typographical or other error might, nevertheless, be sufficient to alert a bank clerk working with account records in visible form. However, because of the similarity of data on many funds transfer instructions, if the notice of withdrawal as entered into the computer does not accord exactly with the funds transfer instruction on all material particulars, the computer may be unable to locate the instruction in question except by initially rejecting all funds transfer instructions which are similar to the one being withdrawn and subjecting them to individual review by bank staff. Such a procedure may be excessively expensive.

66. Any of the notices to a bank under discussion may have legal effect only as of the time when it is given to the bank. Where the bank has multiple branches, the notice may need to be given to the branch where the account is maintained. Unless the appropriate person to receive the notice is actually the person required to implement it, the bank will need a reasonable period of time to communicate the notice within the bank before it can have any practical effect, whether or not the notice may be legally effective prior to that time. Furthermore, if implementation of the notice requires its communication to other banks, an additional period of time may be required for this purpose. This need for time to communicate the notice within the bank or to another bank may be recognized by the law in determining the time at which the notice has legal effect.

67. The time to be allowed for the bank to communicate the notice before the notice becomes legally effective can be phrased only in general terms, such as the amount of time which any bank would reasonably need to communicate the notice, or as the amount of time which a bank would reasonably need in the light of its own existing internal communication system. The general installation by banks of on-line access to their customer account records would reduce the period of time allowed for all banks to communicate notices.

68. One effect of off-line batch-processing of funds transfer instructions is to decrease the likelihood that a bank (or automatic clearing-house) will be able to withdraw a specific funds transfer instruction from the processing after receipt of a notice to do so. Since most off-line batch-processing systems do not permit the economical search for an individual instruction, automatic clearing-houses often do not permit the withdrawal of an instruction once the computer memory devices have been delivered or communicated to them, though some permit withdrawal for a period of time before processing begins. Similarly, the rules governing submission of debit transfer instructions pursuant to standing authorizations to debit often do not permit withdrawal of the authorization for a specific period of time prior to the scheduled submission of the debit transfer instruction. However, where the batched funds transfer instructions are contained on optical disks, the previous difficulties in searching for individual funds transfer instructions no longer exist. As a result it has become technically feasible to allow withdrawal of the instruction for a longer period of time. This new technical possibility may be recognized in the rules governing the time until which a funds transfer instruction may be withdrawn by the transferor or transferor bank.

3. Reversal of erroneous funds transfers

69. After a bank has debited the transferor's account or credited the transferee's account it may subsequently learn that it has made an error in carrying out the funds transfer, or that another bank or other participant in the funds transfer has made such an error. The question arises whether the bank may rectify the error or whether it is precluded from doing so because of the finality of the funds transfer.

70. Legal rules which delay the point of time at which the funds transfer becomes final give banks additional time to discover the problem and to dishonour the instruction before the transfer is final. As has been noted above, one means of delaying finality is to permit banks to enter debits and credits provisionally until the bank has verified the authenticity of the funds transfer instruction, the accuracy of the data processing and the assurance that the bank will receive value from its debit party. Once the funds transfer is final, the reversal of the debits or credits entered by the banks is subject to varying degrees of restriction.

(a) Reversal of debit on demand of transferor

71. A transferor bank which has received a notice that there has been fraud committed in the issue of funds transfer instructions is normally responsible for the loss caused by its subsequent honour of them. However, the transferor bank is not required to reverse the debits to the transferor's account in respect of those funds transfers which have already become final. In such cases, the bank is protected to a greater or lesser extent by principles of law of general application, placing the liability for the loss as between the transferor and the bank in whole or in part on the transferor. For example, if a dishonest employee of the transferor has caused a series of fraudulent funds transfer instructions to be issued, the transferor may have the right to instruct the bank not to honour those instructions which have not yet been honoured but not have the right to require the bank to reverse the debits to his account in regard to those instructions which have been honoured.

72. A special problem arises when the transferor notifies the transferor bank in an appropriate manner and at an appropriate time that he is withdrawing the funds transfer instruction but the transferor bank subsequently honours it by mistake. A variation of this problem arises when the transferor bank has already sent a credit transfer instruction to the next bank in the chain prior to withdrawal of the instruction by the transferor and the bank does not take the necessary steps to prevent the transferee bank from honouring it. Even though the transferor may be acting properly within the legal rules, it may be thought that his issue of a funds transfer instruction and his subsequent withdrawal of it creates a situation in which the transferor bank is subjected to a higher than ordinary risk of making an error. Furthermore, if the transferor owed to the transferee the amount transferred, in many legal systems completion of the funds transfer would be considered to discharge that obligation, even if the legal rules permitted the transferor to withdraw his instruction before it was honoured.

73. One approach to this situation emphasizes that banks must follow the proper instructions of their customers. Therefore, when a funds transfer instruction has been withdrawn in due time and in the proper manner, the

transferor bank should be required to reverse any debit entered to the transferor's account. In addition, since no value has been transferred from the transferor's account, any credit already entered to the transferee's account should also be reversed. Otherwise, the transferor would have the benefit of discharging his obligation to the transferee without being charged for it. Reversing both the debit to the transferor's account and the credit to the transferee's account restores all parties to the situation they would have been in if the transferor bank had acted upon the transferor's withdrawal of the funds transfer instruction. However, if the funds transfer was for the purpose of discharging a valid obligation owed by the transferor to the tranferee, the obligation would remain and would need to be discharged by a subsequent funds transfer. Therefore, a second approach is that, although the transferor bank would in principle be required to reverse the debit to the transferor's account, if the bank showed that the transferee was authorized as against the transferor to retain the funds, it could maintain the debit to the transferor's account.

(b) Recovery of credit in a debit transfer on demand of transferor bank

74. Except for the relatively few debit transfer instructions which are sent to the transferor bank for collection only, a transferor bank normally gives provisional credit to a presenting bank for all debit transfer instructions presented. This provisional credit does not signify finality of the funds transfer. Therefore, the provisional credit may be reversed if the debit transfer instruction is dishonoured in the proper manner and within the allowable period of time.

75. Furthermore, in the vast majority of cases in which the transferor bank could have dishonoured a paper-based debit transfer instruction, it has the right to recover the credit from the presenting bank (and therefore from the transferee) even though the funds transfer has become final. The major exception is that in most countries the transferor bank may not recover a credit which has become final on the grounds that the balance in the transferor's account was insufficient when the debit to that account was entered. Moreover, in common law countries, as well as in some civil law countries, the transferor bank may not reverse the credit given to certain good faith parties in honour of a cheque or bill of exchange bearing a forgery of its customer's signature as drawer. In these countries the truncation of cheques with electronic presentation raises the question whether the transferor bank will be bound by this general rule or whether the law should be changed to relieve the transferor bank of that responsibility.

76. This latter problem is raised in a somewhat different way in connection with debit transfers made pursuant to a standing authorization to debit. If the authorization is lodged with the transferee bank or with the transferee, both of which are common in some countries, the transferor bank has no way to know whether the debit transfer instruction is properly authorized unless the transferor complains about the debit to his account when he receives a statement of account activity covering the period in question. Therefore, it is common in such schemes for the transferee bank to guarantee to the transferor bank that the debit transfer instruction is properly authorized and that it will reimburse the transferor bank for any challenged transfers. In turn, the transferee is required to guarantee reimbursement to the transferee bank.

(c) Recovery of credit in a credit transfer

77. In many legal systems, once the funds transfer is final, the transferee bank may not reverse the credit to the transferee's account on the grounds it has failed to receive settlement. If, at the time the transferee bank makes the credit available to the transferee, there is any doubt whether settlement will occur, the credit may be entered provisionally or other means may be taken to prevent the funds transfer from becoming final.

78. In several countries in which credit transfers have not been the normal means of inter-bank funds transfers, doubts have been expressed whether appropriate legal theories exist to enable the transferee bank to recover from the transferee a credit entered in error. Credits entered in error occur, for example, by the transferee bank crediting an amount greater than the correct amount, crediting the same transfer twice or crediting the wrong account. Nevertheless, in most legal systems it is clear that, in general, the credits established in error can be recovered by the transferee bank. In some legal systems a bank has the right to correct credit entries it has made in error by debiting the transferee's account even though the credit has become final but may correct errors made by a transferor or a sending bank only with the express permission of the transferee.

(d) Right of bank to recover credit by reversing entry

79. In some countries a bank has the right to reimburse itself for a credit entered in error by reversing the credit without the express permission of the transferee. This right may exist for a limited number of days after the funds transfer is final or until the transferee has been notified of the credit. Exceptionally, the bank's unilateral right to correct errors may be unlimited in point of time. However, in many legal systems, the transferee bank may be allowed to correct the error by reversing the credit only with the express permission of the transferee. If the transferee does not give its permission, the transferee bank might obtain reimbursement only by taking legal action.

80. The right of a transferor bank or intermediary bank to correct an error by reversing a credit is essentially the same as that of the transferee bank. However, such a bank may be precluded from reversing the credit to the receiving bank without its permission unless either the receiving bank has not as yet credited its credit party or it can secure reimbursement from the credit party. In some cases, rules of finality governing the funds transfer transaction between two intermediary banks may preclude reimbursement by reversal of the credit even though the funds transfer between transferor and transferee is not yet final.

4. Availability of funds

81. Although there may be no direct legal connection between the finality of a funds transfer and the availability of the funds to the transferee, the finality of the transfer as to the transferee is usually one of the factors determining the time when the funds are made available. It is also important to distinguish between the time when the funds are available to the transferee bank and the time when they are available to the transferee. The time when funds are available to the transferee should also be distinguished from the time when those funds begin to accrue interest. In some banking systems the two points of time coincide, but in many other banking systems funds may be

available for use for one or more days before they begin to earn interest in the account. In other banking systems funds may begin to earn interest in the account before they are available to the customer for use.

82. Any rules on availability could be expected to provide the transferee bank sufficient time to process the funds transfer instructions. Therefore, even a deposit of cash in an account may not give rise to a right to draw on the resulting credit until the following day if the deposit voucher would not be posted until after the close of business. The use of on-line terminals for many funds transfer activities, including the receipt of deposits, may remove this basis for delay in availability in some banks. However, a deposit of cash in an automatic teller machine, even if recorded on-line by the depositor, would normally not be available immediately because of the bank's need to have its personnel count and verify the deposit.

83. The time when funds are made available to a transferee is usually determined by the practice of the transferee bank and is seldom governed either by the contract between the transferee and his bank or by provisions of law. However, in some cases, and particularly in regard to those accounts from or to which large-value transfers are made or which are part of a cash management programme, individual contracts may be negotiated covering, among other matters, the time when funds will be made available to the customer. The maximum periods of time before which the funds must be made available in certain types of funds transfers have been established by law in a few States.

84. Although the availability of funds to the transferee is of primary interest to the transferee, it may also be of interest to the transferor who, for a variety of reasons, may need to be sure that the funds are at the free disposal of the transferee by a particular time. The transferor has little control over the time at which the funds will be available to the transferee in a debit transfer, since it is the transferee who initiates the funds transfer process with his bank. The transferor has more control in a credit transfer since he chooses the date on which the funds transfer begins and since he may be able to specify a "pay date".

85. The legal significance of the pay date in a credit transfer is unclear. As noted in the discussion on the period of time within which a bank must act on the funds transfer instruction, if the definition in ISO/DIS/7982 that the pay date is the "date on which the funds are to be available to the beneficiary [transferee] for withdrawal in cash" is part of the contract governing the funds transfer, it would seem to create a legal obligation to the transferor, and perhaps to the transferee, on the part of the transferor bank. The definition would more clearly create an obligation between the transferor bank and the next bank in the chain, and between each subsequent pair of banks through to the transferee bank. However, it may be unclear in many legal systems whether the transferee bank could be legally bound by the pay date either to the transferor, with whom the bank may be considered to have no legal relationship, or to the transferee. It may be thought that the transferee bank's obligation to the transferee as to when funds should be made available arises out of the relationship between them and not out of the instructions originally emanating from the transferor. In any case, it would seem that the transferee bank should not be obligated by the specification of a pay date if it has not received both the funds transfer instruction and settlement satisfactory to it in sufficient time, unless it has undertaken a more stringent obligation in some appropriate form.

86. Once the transferee bank in a credit transfer has received both the credit transfer instruction and settlement, the funds should normally be available to the transferee promptly since the transferee bank runs no further credit risk. However, if the credit transfer instruction and settlement arrive before the pay date, it is a common practice in common law countries for the transferee bank to delay entry of the credit and availability of the funds until the pay date.

87. Rules on availability of funds in debit transfers must differentiate between debit transfer instructions, such as many bills of exchange, for which the transferee bank will give credit only after it has received notification of honour and the funds have been remitted to it, and debit transfer instructions for which provisional settlement is given between the banks and notification is given only in case of dishonour. Transferees of the first type of debit transfer instruction know that the funds will not be available before their bank receives notice of honour and the remittance of funds. In the second type of debit transfer instruction, which represents the vast bulk of all paper-based and electronic debit transfers, appropriate rules on availability are more difficult to formulate. The instructions are handled in bulk throughout the funds transfer process. The applicable rules, which should take into account such matters as the period of time before the banks receive settlement, the period of time before the debit transfer instructions should normally be honoured and the period of time before information that there has been dishonour should normally be received by the transferee bank, can be based only on averages for the type of instruction in question and the experience of those using the system.

88. In most banking systems settlement for debit transfer instructions of this second type is made by provisional debits and credits through appropriate inter-bank accounts. The settlement may be immediate or it may be delayed for a specified period of time but the date when it is available to the bank is always predictable for each batch of debit transfer instructions of a similar type.

89. For paper-based debit transfers the least predictable element is the period of time before information that there has been dishonour is received by the transferee bank. In some countries a transferor bank may have an indefinite period of time after receipt of a debit transfer instruction in which to dishonour it. Where the instruction itself must be returned through the same clearing channels through which it was presented, in some countries the period of time for it to be returned to the transferee bank can be several times the period of time necessary for it to be presented. Since delaying availability of the funds because of the possibility that the instruction may be dishonoured may delay availability for an excessive period for the vast majority of instructions that are honoured, actions to reduce this period of time may be desirable. Guarantee of honour by the transferor bank eliminates the possibility of dishonour. Cheque truncation with electronic presentment would serve to reduce the period of time for presentment in many countries. The period of time after presentment during which a transferor bank could dishonour an instruction for insufficient funds could be strictly limited. A notice of dishonour could be sent by mail or by telecommunications directly to the transferee (depositary) bank, even if it was necessary to return the debit transfer instruction itself through the clearing channel.

90. Electronic debit transfers present somewhat different problems for estimating the period of time before information that there has been dishonour will be received by the transferee bank. In general, as indicated in paragraph 88, electronic presentment of debit transfer instructions would serve to reduce the time for presentment. Furthermore, the system can be designed in such a manner as to facilitate the prompt return of dishonoured instructions. However, when an electronic debit transfer arises out of cheque truncation or pursuant to a standing authorization to debit where the authorization is lodged with the transferee or with the transferee bank, the transferor bank has no means to verify the authenticity of the debit transfer instruction. Therefore, until the transferor has received the relevant statement of account activity and the period of time for objection to unauthorized debits has passed, the possibility exists that the transferor will claim that the instruction was not authorized or that no authorization to honour the instruction existed. In some countries where only the passage of the statute of limitations or period of prescription cuts off the transferor's rights to object that a debit to his account was not authorized, the period of uncertainty may last for a period of years. For this reason it is adviseable wherever possible for the authorization to debit to be lodged with the transferor bank.

91. Where the transferee is well-known to the transferee bank and there is little doubt that the transferee will be able to reimburse the transferee bank for any dishonoured debit transfer instructions, the bank incurs no substantial risk in making the funds available at any early date. Therefore, there is usually less delay in availability in respect of debit transfers made pursuant to a standing authorization to debit, where transferees are typically large and financially secure organizations, than there is in respect of other forms of debit transfer.

5. Discharge of the underlying obligation

92. Ultimately an underlying obligation is discharged by means of a funds transfer only if the transferee-creditor receives irrevocable credit in his account. However, the time when the obligation is discharged depends on the terms of the contract or other source of the obligation, the law governing the obligation and the funds transfer procedure followed.

93. In a relatively few, but usually important, contracts the transferor is obligated to make the funds freely available to the transferee by a designated date. In some countries it has been the practice to treat primary obligations of a bank, such as a banker's cheque or banker's payment, as satisfying such an obligation, but it is becoming the general practice to use a credit transfer with a specified pay date or even a specified time of day.

94. If the time when the funds must be freely available is not specified in the contract, an obligation discharged by credit transfer is normally discharged when the credit transfer becomes final as to the transferee. Therefore, recent changes in credit transfer procedures due to the increased use of electronic techniques could be expected to affect both the rules on discharge and the rules on finality. Indeed, it appears that in some recent cases the rules on finality of the funds transfer have been influenced by problems which have first arisen in connection with discharge of the obligation.

95. Since the obligation is usually discharged when the credit transfer becomes final, as between the transferor and the transferee it is the transferor who runs the risk of delays or errors in the funds transfer process. In some countries, the courts have relieved transferors from the most serious consequences of such delays by holding that insurance contracts or the like could not be terminated for late payment when the transferor had taken the appropriate actions to transfer the funds and had done so in due time. When the only consequence to the transferor arising of a late payment due to delays in the funds transfer process is loss of interest, the loss is often recoverable from the bank responsible. However, when the consequence is termination of the contract, banks have often been held not to be liable for the resulting damages.

96. Where the underlying obligation is to be discharged by a debit transfer, the transferee may not treat the obligation as being in default if he has the means to start the debit transfer process. Therefore, the issue as to when the underlying obligation was discharged seldom arises in the case of debit transfers where the transferee issues the debit transfer instruction, such as in the case of bills of exchange drawn by the transferee on the transferor or on the transferor bank or debit transfers made pursuant to a standing authorization to debit. Similarly, in the case of a cheque, the transferee may not treat the obligation as being in default once he receives possession of the cheque. In some countries there is a question whether the transferor may be liable to the transferee for interest as a result of remitting a cheque at such time that the transferee does not receive credit until after the date payment was due. However, in all cases of debit transfer it is the transferee who bears the risk as against the transferor of delays or errors in the funds transfer process. Although the debit transfer instruction must be honoured when presented for the underlying obligation to be irrevocably discharged, the time when it is honoured is of no practical significance in respect of the underlying obligation.

E. Rules on finality and system risk

97. System risk is the danger that the banking system as a whole will be severely damaged by the failure of one or more banks to settle for the transfers they have made. A failure to settle is almost always a consequence of problems external to the funds transfer process. However, the recent development of on-line high-value net settlement electronic clearing-houses through which participating banks often send in one day funds transfer instructions for more than their entire capital and surplus increases the risk that a bank will end the day with a debit balance for which it cannot settle. Futhermore, the larger the debit balance for which a bank fails to settle, the greater the impact on the other banks in the clearing-house, on the banking system and on the economy in general.

98. The extent to which a banking system can absorb a bank's failure to settle depends not only on the size of the debit balance for which it fails to settle, but also on the allocation of the loss between the other participants in the funds transfer system, including the non-bank customers of the banks involved. Among the rules allocating loss to the participants in the funds transfer system are the rules governing finality. In turn, the rules governing finality of large-value funds transfers have an important effect on the financial markets and large commercial transactions for which these transfers are made.

99. The public discussion of the issue has been concentrated in the United States where there are several on-line large-value systems in operation. The fact that these systems have different finality rules leads to different possibilities and techniques for limiting system risk. The issue has also been addressed in the United Kingdom where the nature of the banking system has led to yet other solutions to the problem. Because the discussion must of necessity treat the issue separately for each country, it has been placed in the Annex to this chapter.

Annex

National experience in reducing system risk

A. The nature of the problem

1. In general

1. High-value electronic funds transfers, which are at present usually credit transfers, are likely to create risk for several reasons. The most obvious is that the value of the individual transfers, the total value of transfers made in a day and, most importantly, the size of the net debit or credit balance of an individual bank with any other bank or with the banking system as a whole during or at the end of the day are greatly increased. A second important reason is that, since transferors are more interested in having their large-value funds transfers completed quickly, large-value transfers are generally made as same-day transfers. As a result, the time allowable before settlement has been shortened and banks have less time than in earlier days to mobilize funds to meet their debit balances. Foreign banks, or local branches of foreign banks, may have more difficulties than do domestic banks in funding their positions, especially if the foreign banks cannot obtain credit from the central bank.

2. Correspondent bank settlement

2. High-value credit transfers made through correspondent bank relationships can offer rapid settlement with little or no system risk under most circumstances. When the receiving bank receives value from the sending bank at the same time that it receives the credit transfer instruction, which is typical when the banks maintain accounts with one another, the receiving bank can give irrevocable credit to the credit party immediately without risk. When the receiving bank does not receive value immediately, it may have the right to delay honouring the funds transfer instruction until it receives value, collateral is given or there is a guarantee of reimbursement from a reputable source. Since there is no unsecured extension of credit arising out of the funds transfer, there is no risk to the receiving bank and, therefore, no system risk. However, this conclusion is subject to the important qualification that, when the receiving bank is the account servicing bank and the instructions to debit or credit the account of the sending bank, i.e. the account owner bank, are sent or received by a number of departments of the receiving bank in addition to the funds transfer department, it can make rational credit decisions only if all its departments report all transactions promptly. When large sums of money are involved, this may call for transactions from all departments to be entered in real-time to the account.

3. Some correspondent bank relationships require the receiving bank to give irrevocable credit to the credit party before receiving value. This may occur, for example, because the pattern of funds transfers calls for certain banks to send more funds transfer instructions than they receive early in the day and to receive more than they send late in the day. Although these banks may regularly carry substantial credit balances at the end of the day, they may also regularly carry substantial debit balances during the day. In this case passage of high-value credit transfers through correspondent bank relationships may create significant system-risk.

3. Net settlement

4. A net settlement network is in many respects an arrangement for a series of correspondent bank relationships between each pair of banks in the network made through a single switch. However, there are several institutional features which may increase system risk in comparison with pure correspondent bank relationships. Since there is no mechanism in a net settlement network for the sending bank to give value to the receiving bank prior to settlement, at any point of time during the day one bank necessarily has a debit balance with the other bank. Furthermore, since the creation of a debit balance arises out of the receipt of credit transfer instructions, as well as by the sending of debit transfer instructions, no bank in the network can know until the end of the day whether it will finish the day with a debit or a credit balance with any other bank, even if it were to know the total amount of credits it would send to that other bank during the day. As a result, a bank which adopted a policy of not giving irrevocable credit on a credit transfer until it knew it had value, could act on instructions it received only to the extent it had already sent credit transfer instructions to the other bank. An alternative policy, which would permit receiving banks to give immediate irrevocable credit to a larger proportion of credit transfer instructions it received, would be for each bank to establish an upper limit of the net intra-day debit balance it would allow each of the other participating banks to carry with it at any point of time. A bank which received instructions that would bring the debit balance of the sending bank over the pre-established limit would have to return those instructions to the sending bank for re-submission after the sending bank's balance had been re-established. If the network functioned through a central switch, the switch could be programmed to return the instructions to the sending bank rather than requiring the receiving bank to do so.

4. Net-net settlement

5. If a funds transfer network settles the day's funds transfers on a net-net basis, i.e. by establishing a single debit or credit balance for each participating bank for the total amount of all funds transfer instructions it has sent to or received from all other participating banks, but distributes loss in case of failure by a bank to settle on the basis of the net debit or credit balance of that bank with each of the other participating banks, the system risk is that of a net settlement network. However, where the loss is considered to be that of the entire network to be shared among the participating banks, under several of the possible loss-sharing formulas the loss to be borne by the other banks can often be estimated only after the close of the settlement. Under some formulas a bank with a credit balance in its own bilateral transactions with the non-performing bank might nevertheless be called upon to share in the loss. This in turn could mean that banks which could easily have settled if the settlement had been completed under normal circumstances may not be able to settle because of the loss they have suffered arising out of the failure of the first bank to settle. This cumulative effect arising out of one bank's failure to settle increases the system risk.

5. Means available to reduce system risk

6. A risk-reduction policy would have three principal goals; to limit the likelihood that a bank will fail to settle; to limit the effect of such a failure on other banks, the banking system as a whole and the economy in

general; and to ensure the continued smooth operation of the funds transfer system. These goals may be in conflict. The primary techniques available for reducing system risk in either net or net-net settlement networks can be grouped under five headings:

- Participation in net or net-net settlement networks can be limited in various ways. The number of banks can be limited, since the fewer the number, the less likely that any one of them will fail to settle. The participating banks can be limited to those whose financial security is unquestionable. Foreign banks, which may be unable to settle in local currency, may not be permitted to participate, allowed to participate to only a limited degree or allowed to participate only if they furnish additional assurance of their ability to meet their commitments.

- The degree of monetary exposure of any single bank or of the network as a whole can be limited. Intra-day bilateral net debit limits can be established between individual pairs of banks. Intra-day net credit caps can be established limiting the amount owed by any one bank to the entire network. If more than one paper-based or electronic network exists in a country, the intra-day credit cap could be applied to the net amount owed by any one bank across all networks.

- The period of time from the sending of the first funds transfer instruction through the network until settlement can be reduced to a minimum so as to limit the possibility that events prior to settlement will cause a failure to settle.

- Banks can refuse to make funds available to their credit party until settlement has been completed. This protects the receiving bank in case of failure of settlement at the cost of delaying availability of funds to the credit party. Since the credit party may need those funds in order to make its own funds transfers that day, as may be particularly the case where the credit party is itself a bank, the entire network may come to a halt because of a shortage of funds until those funds are made available subsequent to settlement. Alternatively, receiving banks may make the funds available to the credit party with a right to reverse the credit in case of failure of settlement. This protects the receiving bank to the extent the credit party is credit-worthy by shifting the risk of loss from the receiving bank to the credit party.

- The debit balance of each participating bank can be guaranteed by an appropriate financial institution, which might be the central bank or a private or public insurance fund. Protection of the system is most effective if the guaranteeing financial institution can make the necessary funds available immediately. Otherwise the system will suffer a cash-flow shortage that may cause other banks to be unable to meet their commitments.

B. National experience

7. In this section are set forth the experience of three countries which have taken different approaches to limiting system risk in their high-value electronic funds transfer networks.

1. France

8. On 16 October 1984 a high-value computer-to-computer network entitled Système automatique de gestion intégrée par télétransmission de transactions avec imputation de règlements "Etranger" (SAGITTAIRE) began operations. Since SAGITTAIRE was originally conceived as a domestic extension of S.W.I.F.T., only banks which are members or users of S.W.I.F.T. can participate in SAGITTAIRE. However, the use of SAGITTAIRE has been extended so that it can furnish the domestic link for essentially every type of international funds transfer labeled in French francs. It is not currently available for use for purely domestic funds transfers, although it has been decided that it will be available for payments arising out of money market transactions.

9. Although SAGGITAIRE functions as though it was a correspondent bank service of the Bank of France, the Bank serves only as the operating agent for the group of participating banks. Participating banks send SAGITTAIRE funds transfer instructions to the Bank of France with one of three entry dates, i.e. that day, the next banking day or two banking days later. The sending bank's "pseudo-account" is immediately debited according to the appropriate entry date, the receiving bank's "pseudo-account" is credited according to the appropriate entry date, and the funds transfer instruction is forwarded to the receiving bank.

10. The entry date closes at 12:00 on each full banking day (10:00 on partial banking days), i.e. an entry date of Wednesday, 4 March runs from 12:00 Tuesday, 3 March to 12:00 Wednesday, 4 March.

11. At the end of the banking day, i.e. at 17:30 on full banking days, the debits and credits arising out of SAGITTAIRE operations showing in the "pseudo-account" for that entry date are entered to the account of each participating bank with the Bank of France, along with the debits and credits to the account of the bank arising out of other banking operations. However, since the Bank of France does not allow a bank to carry a debit balance in its account, the entries are not made if doing so would leave a debit balance in the account of a bank. If the debit balance is not covered by 11:30 the next morning, the Bank of France is authorized to annul the debit entries arising out of SAGITTAIRE transactions, as well as the corresponding credits, in the reverse order of reception of the instructions until the debit balance is eliminated.

12. As a result, if there was any reason to doubt the financial position of a sending bank, the most dangerous funds transfer instructions from the viewpoint of the receiving bank would be those which pass through SAGITTAIRE immediately before 12:00, while the most secure would be those made with a delayed entry date or which pass immediately after 12:00. However, since all participating banks are under public control, failure to settle is highly unlikely. The SAGITTAIRE rules do not specify when the receiving bank must credit its credit party. However, under standard French doctrine, the credit becomes irrevocable when the receiving bank enters a credit to the credit party's account (and not to his "pseudo-account"), even if the bank never receives value for the funds transfer.

2. United Kingdom

13. The Clearing House Automated Payment System (CHAPS) is a high-value same-day credit transfer network linking the twelve settlement banks, including the Bank of England. It is a nationwide supplement to, and eventually a replacement of, the Town Clearing, which is the specialized paper-based high-value funds transfer network limited to the City of London. A recent decision has been made that settlement membership in CHAPS and the Town Clearing, as well as in the other clearing arrangements, should be opened to banks which meet the following five criteria:

- readiness and ability to comply with the technical operational requirements of the clearings and agreement to be bound by the rules of the individual clearing company concerned;

- ability to establish settlement account facilities at the Bank of England;

- willingness to meet a fair share of operating costs;

- willingness to pay a fair entry price; and

- ability to meet a minimum volume criterion in the operational clearings concerned.

A number of banks, including the London operations of foreign banks, are seeking settlement membership in CHAPS and the Town Clearing. Non-settlement banks can have funds transfer instructions sent through CHAPS only by maintaining a correspondent bank relationship with a settlement bank.

14. Banks receiving credit transfer instructions through CHAPS are required to make same-day availability of the funds to the credit party. This rule is intended to increase the usefulness of CHAPS to the business and financial communities. In turn, the sending settlement bank is obligated to reimburse the receiving settlement bank for the amount of the funds transferred, even if the sending bank is not reimbursed by its instructing party. A funds transfer through CHAPS is unconditional and irrevocable.

15. The proper functioning of CHAPS, therefore, depends upon confidence in the solvency of the sending bank. This confidence has been secured in the past by restricting the number of participating banks in CHAPS and by relying on the Bank of England to put through the final inter-bank CHAPS settlement transactions. At present settlement is made at the end of the day on a net-net basis by transferring balances of the settlement banks in their accounts with the Bank of England. In the new arrangement, "the prudential criteria to be met for settlement membership in any clearing [including CHAPS] should be subsumed into a precondition that members maintain an account with the Bank of England which could, with the Bank's express agreement, be used for the purposes of settlement in that clearing." 1/

1/ Payment Clearing Systems: Review of Organization, Membership and Control (Members of the Bankers Clearing House, London, 1984), Appendix 1, p.20.

3. United States

16. Four large-value on-line credit transfer networks are currently operating in the United States. They divide conveniently into two groups. The first group is composed of Fedwire, operated by the Federal Reserve System. Fedwire permits all 14,000 banks in the United States and the other deposit taking institutions which maintain account balances with their regional Federal Reserve Bank to transfer those balances to other banks or deposit taking institutions. In effect, Fedwire functions as a correspondent banking service to the entire banking system.

17. The second group of on-line credit transfer networks is composed of the three private networks. CHIPS is owned and operated by the New York Clearing House Association. There are over one hundred participating banks authorized to submit credit transfer instructions for payment to other participating banks, of which a number are New York branches of foreign banks. The Clearing House Electronic Settlement System (CHESS) is owned and operated by the Chicago Clearing House Association. Six large banks participate. CashWire is a part of BankWire, a nation-wide telecommunications network owned by a consortium of 180 U.S. banks of which 17 use the settlement feature of CashWire. In addition, large-value transfers are made through correspondent banking relations, which are highly developed in the United States for use in domestic as well as international transactions.

(a) Fedwire

18. The rules governing Fedwire provide that a credit transfer is final between the sending bank and the receiving bank and the receiving bank has available funds when the receiving bank's regional Federal Reserve Bank sends the notice of the credit to it. The notice of the credit is sent by telecommunications to banks which are on-line with Fedwire and the notice may be given by telephone, telex or sent by mail to a bank which is not on-line. The Fedwire rules require the receiving bank to credit its credit party promptly after receipt of the notice, but the rules neither define how soon the credit must be given in order to be prompt nor do they purport to govern the time at which the transfer is final as to the credit party.

19. As a result of the credit transfer instructions which a bank sends over Fedwire and the other actions it may take affecting its account, the bank may run an intra-day or end-of-day debit balance at its regional Federal Reserve Bank. In particular, many banks borrow overnight from other banks in the inter-bank funds market and return those funds to the lending bank the next morning. The borrowing banks, which tend to be the large money-centre banks, often run large intra-day debit balances in their accounts with their Federal Reserve Bank that are restored to credit balance by the end of the day. As is true of any correspondent bank, the Federal Reserve Bank may refuse to accept credit transfer instructions from a bank in debit balance until either it has received sufficient funds to restore a credit balance in the account or it is otherwise secured. However, if a debit balance does result, the Federal Reserve Bank carries the entire risk of non-reimbursement. Therefore, in addition to protecting the receiving bank, the Fedwire rules isolate the entire banking and non-banking sector from the immediate consequences of a sending bank's failure to settle.

20. The result of the Fedwire rule would be the same in regard to any correspondent bank governed by a similar finality rule, i.e. the correspondent bank would bear the risk if it irrevocably honoured a credit transfer instruction and the sending bank thereby incurred a debit balance in its account with the correspondent bank. However, if a sending bank fails to reimburse a privately owned correspondent bank, there is the risk that the correspondent bank may also fail with potentially cascading effect throughout the banking system. This risk is not present in Fedwire since the correspondent bank is the central bank.

(b) Private networks

(i) Private network settlement rules

21. All three networks settle by reporting the net-net debit and credit balances for all transactions of their participants to their regional Federal Reserve Bank. Those banks with a debit balance transfer funds to a special clearing account for that network, usually by a Fedwire transfer from their account with the Federal Reserve Bank. Once all the banks in a debit position have transferred the funds due, the Federal Reserve Bank transfers the appropriate amounts by Fedwire to the accounts of those banks with a credit balance. The special clearing account carries no debit or credit balance forward after settlement is completed. One of the requirements of the Federal Reserve Banks in establishing the settlement arrangements with the three networks was that the Reserve Banks would bear no settlement risk arising out of the existence of the clearing accounts.

22. Participants in CHIPS are divided into settling and non-settling banks. Non-settling banks must settle any net debit balance with one of the settling banks, and receive any net credit settlement through that bank. Settling banks settle through the clearing at the Federal Reserve Bank for the net debit or credit balance arising out of their own funds transfers and those of all the non-settling banks for which they settle.

23. The CHESS rules are similar to those for CHIPS in that they permit a participant to settle through another settling bank rather than through its account with the Federal Reserve Bank.

(ii) Failure to settle

24. If any bank fails to settle its debit balance from CHIPS or CHESS transfers at the end of the day, all transactions to that bank and from it are withdrawn from the settlement and new balances are calculated for the remaining banks. Since other banks may be unable to settle for their new debit balance, the ultimate procedure under the rules is for a general unwinding of the settlement. In that case, settlement for the day's transactions would have to be arranged by the participating banks on a bilateral basis outside the ambit of the current rules. CHESS defines its unwind procedures as administrative aids to assist surviving institutions with claims.

25. Although settlement in CashWire is normally carried out on the basis of each bank's net-net debit or credit balance for its entire day's transactions through CashWire, in case any bank fails to settle, the rest of the settlement

is carried out by pairs of banks on a net settlement basis. Therefore, each bank carries the risk that it will not receive reimbursement for the net amount of credit transfer instructions it has received from another bank through CashWire that day in excess of the credit transfer instructions it has sent to that bank.

(iii) Private network finality rules

26. CHIPS transfers are final when released to the receiving bank in that the sending bank may not withdraw the credit transfer instruction. However, since there is a possibility that receiving banks will not receive settlement for transfers through CHIPS, they are not obligated to honour funds transfer instructions or to give irrevocable credit to transferees or other credit parties until settlement is final.

27. CHESS and CashWire transfers are final as to both sending and receiving banks when received by the latter. The sending bank may not withdraw the credit transfer instruction.

(c) Methods considered to reduce system-risk

28. The American banking community has been concerned with limiting the systemic risk arising out of the recent increase in bank failures. In respect of the possibility of a failure to settle, on 29 March 1984 the Board of Governors of the Federal Reserve System requested comments on various proposals to reduce system risk in high-value funds transfer networks. Over two hundred comments were received. The principal methods to reduce system risk suggested by the Federal Reserve or by respondents are set out in the following paragraphs.

(i) Bilateral net credit limits

29. Under this method each bank would determine the maximum amount of the net intra-day credit it is willing to extend to any other bank arising out of funds transfers through the network. Such a limit would be flexible, with each bank adjusting the net credit limit it would extend to other banks depending on considerations relating to the economy in general, to perceptions of the other bank's current financial position or to meet immediate business needs. Since a bank which carried a reasonable balance with each of a large number of other banks might have a combined debit balance beyond its means, this method might have little likelihood of reducing the risk of a bank failing to settle. However by limiting the effect of a failure to settle on any other particular bank, this bilateral net credit limits may reduce the risk to the system.

30. Each of the three private large-value networks has a requirement that the participating banks have bilateral net credit limits for each of the other participating banks for funds transfers made through that network. These limits are monitored on a real-time basis by the network computers. If an individual bank wishes to have a bilateral credit limit for another bank applicable across all systems, it has to monitor the situation itself.

31. Bilateral net credit limits are not applicable as such to Fedwire or private correspondent banking relationships. However, the same result is achieved by limits on the intra-day debit balance any bank is permitted to carry with the Federal Reserve Bank or with the private correspondent bank.

(ii) Sender net-debit cap

32. A sender net debit cap limits the extent to which a bank can send credit transfer instructions to all other banks beyond the amount it receives from them. Sender net-debit caps of 50 per cent of capital are currently in effect in CashWire. CHIPS is actively considering caps based on a percentage of the total bilateral credit limits established for a bank by all other participating banks individually.

33. By restricting the extent to which a bank can send credit transfer instructions beyond the amount received, and applying the restriction continuously throughout the day, the likelihood that the bank will fail to settle as well as the consequences of such a failure are reduced. However, if sender net-debit caps are applied separately to each of the three private networks, it has been thought that the total net amount a bank could send might be too high. An alternative, therefore, would be a single sender net-debit cap applicable to all networks combined.

34. While the usefulness of sender net-debit caps to reduce risk seems clear, it is feared that one adverse effect could be to interfere with the funds transfer system. A bank which had not yet received sufficient funds transfers from other banks might find itself unable to effect the funds transfer requests of its customers. In particular, banks which had borrowed funds overnight might find that they had reached their net-debit cap simply by returning the borrowed funds the next morning. In order to reduce this possibility happening to them, banks might delay sending funds transfer instructions to other banks until late in the day, thereby generally slowing the entire funds transfer system and threatening traffic jams at the end of the day.

(iii) Guaranteed finality of honour by receiving bank

35. Finality of honour to the transferee is assured once the inter-bank transfer through correspondent banks (either two-bank funds transfers or three-bank funds transfers as in Fedwire) is completed since the transferee bank automatically has value. Finality of honour to the transferee is assured in a net settlement network if the receiving bank is obligated to credit its credit party whether or not it receives settlement, as is currently the rule in CashWire and CHESS.

36. Guaranteed finality of honour by the receiving bank insulates the non-banking sector of the economy from the effect of a failure to settle, thus protecting financial markets and the general economy. It could be expected that receiving banks would automatically limit their exposure to sending banks which they considered doubtful by lowering the bilateral net credit limit they had established. On the other hand it has been suggested that guaranteed finality might cause receiving banks to increase fees to compensate themselves for bearing the increased risk and would lead to a reduction in the willingness of banks to receive funds transfers.

(iv) Central bank guarantee of debit positions

37. One means of reducing system-risk which has been carefully avoided to date is for the Federal Reserve and other banking authorities to guarantee the obligations of participants in the system beyond that already available for small deposits. The recent closing of a number of small and medium-sized banks and the rescue of a large bank by the banking authorities have caused those authorities to search for other means to reduce system-risk.

(v) Insurance to guarantee debit balances

38. The guarantee of the debit balances arising in settlement networks could also be covered by a public or private insurance fund, similar to the insurance funds covering small deposits in banks and other deposit taking institutions. One estimate which has been made is that the premium cost would approximate $1.90 per million dollars in funds transfers.