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**IMPROVING CROSS-BORDER PAYMENTS
IN THE EURO AREA**

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EXECUTIVE SUMMARY

INTRODUCTION

A common means of payment for the European Union has almost been achieved. But this has not yet been followed by a “single payments area”.

It is true that a system for efficient cross-border transfers has been created in the context of implementing Euro area monetary policy. It is also true that most cross-border *wholesale* payments can now be processed as cheaply and as quickly as domestic ones. Yet *retail* transactions are still hampered by inefficient procedures, due partly to the lack of a common and homogenous infrastructure platform and a lack of interoperability between national payment systems.

The Cross-Border Credit Transfer Directive of 1995¹ does already provide a legal base for correcting some of the inefficiencies which affect retail payments: improving the transparency of information and charges for the customer; setting a time limit for settlement of payment orders; and stimulating the reduction of charges through competition. The Commission will shortly be proposing a revision of the minimum exemption threshold for balance-of-payments statistics, below which payments do not need to be reported. It will also be examining, in cooperation with the European System of Central Banks, the various proposals for improvements advanced by the banking sector.

In addition to such action at EU level, however, financial institutions themselves need to take urgent action to reduce costs and the time needed to finalise payments, and to introduce already-existing international standards.

The aim of this paper is to analyse the current situation in a number of selected financial institutions within Member States, and to outline some practical ways in which the performance of cross-border credit transfers might be improved. In particular it examines:

- The actual costs of cross-border payments, both for the banks and for their customers;
- how these costs arise; and
- how they are divided between the different operational phases of transactions.

Much of the research focuses on how payment instructions are processed, and the costs created by the lack of interoperability between national payment systems. It concludes by suggesting *how* these inefficiencies might possibly be reduced and *if* they can be reduced.

PART I: THEORETICAL PERSPECTIVES AND CONSIDERATIONS

Retail payments – for example, card transactions, cheques and direct credit transfers – can be processed through a variety of different payment methods, systems and carriers; but the difficulties involved in processing the orders remain constant. The two most controversial issues are the time needed to transact payment instructions, and the costs charged to the customer. In examining these, a number of factors are relevant.

First, the volume of cross-border transactions is relatively low compared to the volume of domestic payments. As a result, it is difficult for cross-border systems to reach a “critical

¹ 95/5/EC

mass” of declining marginal costs. The charges for each individual transaction are consequently higher.

On the other hand, charges are also inflated by the number of intermediaries involved in a cross-border transaction. Every financial institution supplying an endorsement service must be paid for it.

Finally, one of the main determinants of cross-border transaction costs is the extent to which straight-through processing is possible. This, in turn, determines how much manual intervention – the root cause of high costs – is required to finalise a payment order.

Payment systems

The various solutions to effect cross-border payments may be divided into:

- those based on *correspondent banking*;
- those based on *open or closed agreements* between a limited number of financial institutions;
- those based on direct or remote access to *automated clearing houses*; and
- a real *pan-European payments system*.

Correspondent banking has been the method mostly used to transact cross-border payments in the Euro area. It has many disadvantages. It is relatively slow and expensive due to a high percentage of manual intervention needed during the process. The transaction instructions pass through several financial institutions, each of which add different national items of data which are not standardised and are therefore time- and cost-demanding. The system is mainly based on bilateral agreements between national and cross-border institutions in order to permit an adequate geographical coverage.

For example, S.W.I.F.T.² is a global bank-owned and controlled co-operative network. It is building an integrated system to achieve the highest possible rate of straight-through processing. It supplies secure message services and interface software at reduced consumer costs to financial institutions world-wide; supports payments, securities, treasury and trade services; and permits productivity gains through the automation of manual procedures on an *end-to-end basis* with the indirect effect of supporting and *standardising* internal reporting procedures.

Bilateral netting services guarantees make available information about the net positions of any one participant in order to reduce inefficiencies and to facilitate *control of traffic flows*. The system ensures secure access through authentication of the user and confidentiality of the messages by encryption procedures. Furthermore the system promotes the standardisation of the content and structure of information flows and the *automation of processes*, once each participant has defined its own procedures.

Sharing the cost of infrastructure development and support across several thousand institutions contributes to a *low cost base*. Further reduction of the charges is impeded, however, by the principle that a payment can only be executed when the actual ownership of the money to be transacted can be transferred through an account which one institution

² Society for Worldwide Interbank Financial Telecommunication.

services for the other³. If no direct account relationship exists, the chain has to be extended through correspondent or clearing systems. In the case of a transfer between institution A and B, either A services a «vostro account» to B, or B services a «nostro account» to A, or A and B are linked by a clearing system. A direct effect is the involvement of many intermediaries in the transaction, which makes it difficult to standardise. It also increases the possibility of losses and double charging. A possible solution might be to adapt and standardise the national systems participating in order to ensure high interoperability and to provide links between them.

Less standardisation is needed if the system is based on direct or remote links to automated clearing houses – ACHs – which create a network with the national systems. The Automated Clearing House Network is an electronic network for payments and transactions used by individuals, companies and governments. The linkage between ACHs from different countries permits the automatic processing of payments to be cleared and settled across borders. The system allows national customers to submit payment instructions in any specific format and will convert it into standard payment messages suitable for distribution and processing abroad. Only a few ACHs are currently connected to the system and their transaction amounts are quite low; but, increasingly, foreign-based banks have a remote access to the ACHs even if, due to the initial investments required, only large banks can really afford to participate.

Several financial institutions have already tried to build up cross-border arrangements with partner institutions in Europe, but this has the disadvantages of being limited only to a group of banks and requiring agreement on operational standards. Interoperability, on the other hand, would already exist with the creation of an independent pan-European payment system, developed by governments in association with the banking network, because this system would be already internationally structured. On the other hand cross-border transactions account only for a small percentage of payments compared to national payments and rarely justifies high investments in processing systems.

The Trans-European Automated Real-time Gross Settlement Express Transfer System – Target – ensures the execution of the single monetary policy. This pan-European system, which clears Euro across the banking industry, was set up by the Central Banks. It is composed of the national settlement systems, which process immediately and irrevocably the transactions one by one, and a central payment mechanism linked by common and standardised procedures –the Interlink system-, which provides to all participants a uniform platform and standardised payment interface. It was designed for all values of payments; but it provides an adequate solution only for wholesale payments partly because the cost of real-time, non-batch processing is not an economic solution for retail payments and partly because of the potentially high number of retail transactions for the limited capacity of the system. Even if Target guarantees the finalisation of the payment in around 30 minutes, it represents only a complementary solution in case of urgency due also to the difficulty of tracing the order if it is delayed or wrongly routed.

³ S.W.I.F.T., *Straight-through-processing (STP) Payments, Automation Guide, How to improve straight-through-processing of cross-border S.W.I.F.T. payment messages.*

PART II: FIELD SURVEY

This study examines the performances in transacting cross border payments in a number of different Member States⁴, chosen as benchmarks for the description of the payment processing system. The focus is on cross-border credit transfers and cheques; and is partly based on estimates.

It should be noted, however, that the more important factors giving rise to charges are not internal, but exogenous. Banks may have little direct influence.

The costs charged for payment transactions differ from institution to institution even within the same country. Moreover, detailed knowledge of the bilateral agreements between different institutions would be necessary for estimating the full costs to be charged for a transfer and their allocation. Since, however, it is impossible to know the costs of each possible correspondent bank in each country in the EU, it has been assumed for the sake of simplicity that the correspondent bank bears the same charges as the transmission bank. In practice, for inter-bank transfers, the total charges and their allocation may be different - a credit transfer from bank **a** in country **A** to bank **b** in country **B** may cost more or less with respect to a transfer of the same amount from bank **b** in country **B** to bank **a** in country **A**. However, the simplifying assumption does not significantly alter the conclusions.

The most common payment systems and carriers used to transact cross-border payments are S.W.I.F.T., EBA, Target (only on request of the customer), and cheques. The processing of a payment order may be easily divided into different steps, which have to be completed by the customer and by the bank to finalise an order. The process can be divided in two macro-phases:

- **the transmission of the order** including the collection of the information from the customer, handling of the message, the processing and the error handling; and
- **the receipt of the message** involving the validation and the accreditation process.

Sending the message requires manual intervention when the payment instructions are delivered in standard written form. If the order is delivered electronically, manual correction will be limited. But if errors in the preparation and transmission of the payments are dealt with manually the time involved will be very different from case to case depending on what is missing and if the information can be recovered easily to repair or complete the instructions. On average this operational stage is expensive and ranges around 15-20% of the total costs because the customer rarely provides all the details and information requested⁵.

By contrast, validation of the message order is usually dealt with automatically and is therefore neither time-consuming nor costly. Even if manual intervention is needed, the process can be finalised within approximately a few minutes and the cost of this stage is estimated to be around 10-15% of the totality of the charges.

One of the main difficulties in routing payment instructions lies therefore in **collecting** and **correcting** the data requested by banks to the customer in order to be able to initiate the process. The transmission of the payment order results in one of the most costly stages of the process and accounts approximately for 50% of the total costs charged. This is because

⁴ Italy, Germany, Ireland, Austria and Belgium.

⁵ The latter case relates to big enterprises, which invest in straight-through processing and therefore use pre-scheduled information.

manual intervention is required to perform correcting operations, especially when the payment order is initiated by a branch of a financial institution, which is not equipped for this type of transaction. Manual correction therefore needs to be reduced, the automation of the process increased - especially through cutting the number of operators involved in each operational stage. The introduction of the IBAN code, for example, will permit transmission of the order to the beneficiary's bank directly, avoiding the intervention of an operator in the execution phase.

Manual intervention is also required to fulfil balance-of-payments reporting for the National Central Banks, and represents, apart from an additional cost, a time commitment. For outgoing cross-border credit transfers the declaration system is based on written documents, while for incoming ones a similar reporting requirement is needed, although there is no obligation to provide a written document nor the customer's signature. Some countries in Europe have reporting obligations, (e.g. France, the Netherlands, Italy, Belgium) while others do not (e.g. Finland and Ireland) because the statistical information is collected through sample-based surveys.

One direct effect of differences in reporting requirements is that some payments - for example from Belgium to France - must be reported *twice*, once to the French control institution and once to the Belgian control institution. The solution must be to set the reporting requirement threshold to €50 000. This would enable banks to process all payments below that limit in the same way, so increasing the level of straight-through processing.

The level of straight-through processing is also influenced by the level of *interoperability* between the different payment systems involved in the transaction: for example between the national and the S.W.I.F.T. network, or between the internal systems developed by each financial institution itself which differ widely one from another. The *harmonisation of the bank codes* together with the extension of the S.W.I.F.T. network, even in the national territories linked to automated clearing houses, may represent a solution.

The carriers and payment systems used to process payment orders (S.W.I.F.T., EBA and possibly Target) and the information requested to initiate payment processing are generally common between the different countries. The main differences, apart from the different levels of straight-through processing, relate to the charging method in use.

In some countries, a *transaction cost-based fee* is charged for each payment order depending on the specific characteristics of the transaction (e.g. carrier used, urgency, etc.). In other countries a *flat fee* per payment is charged, regardless of the amount of the payment and regardless of the payment system or carrier used for the processing (e.g. Ireland). Under the latter method, the institution itself is responsible for choosing which carrier/payment system to use for the processing depending on how the transaction can be finalised with the destination bank. The imposition of a flat fee represents a good solution for the customer because the cost conditions are exactly known in advance and are constant independent from the payment carrier or system used. The more the critical mass of the process is reached, the more payment orders will be processed, and the more it will become profitable for banks to use this method of calculating tariffs. This will be so even if it requires higher standardisation and harmonisation and even if the originator's bank may incur the risk of additional costs if many financial institutions are involved in the operational chain.

The third main cause of costs is the lack of *electronic verification procedures* during the routing of the instructions, especially the verification of the client's signature.

Possible solutions

The banks themselves may correct some of these inefficiencies – for example, by increasing the interoperability of payment carriers by providing the *substitution/extension* of the S.W.I.F.T. network. This will reduce the heterogeneity of networks and the costs of adaptation measures. It should also be possible to charge a *flat fee* on cross-border transfers independently of the payment carrier used; to *avoid the maintenance of account relationships* with the correspondent institutions; to provide *electronic verification and validation procedures*; and to *improve the links to ACHs*.

However, an ***increase in straight-through processing***, which would be one of the main remedies, is mainly beyond the power of the financial institutions themselves. Changes in the legal framework will be necessary. Modification of the balance-of-payments reporting requirements would directly cut costs by reducing manual intervention, and reduce the amount of information requested from the customer to initiate a payment instruction.

Similarly, a reduction in the number of operators involved in each transaction stage and a higher rate of automation in the process can only be achieved through the harmonisation and simplification of the information requested as input for the process: i.e. *harmonisation of the banks codes* (S.W.I.F.T. code); harmonisation of the forms to be filled in for cross-border transfers with an *automatic selection of the currency of the payment* (Euro); an *automatic selection of the costs charging method* ("OUR" mode); and *suppression of the reason for payment below €50 000*.

The effect of these changes would be that the information to be provided by the customer would then be limited to the:

- account number, name and address of the originator
- account number, name and address of the beneficiary
- harmonised code, name and address of the destination bank.

Finally, for necessary reporting requirements, the payment message could be copied to the central institution automatically and *electronically saved* in the archives of the bank to avoid paper-based storage.

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INTRODUCTION

A common means of payment for the European Union has been achieved; but this goal has not yet been followed by the comprehensive creation of a “single payments area”.

Cross-border payments include card payments, the use of cheques or of Euro zone banknotes and cross-border credit transfers. The latter provides the most controversial issues. Surveys show that card payment systems are more efficient compared to credit transfers and that charges for the use of cheques are higher than those for any other payment instrument.

Cross-border wholesale payments can now be performed nearly as cheaply and quickly as they can domestically; yet retail cross-border transactions are less reliable than domestic ones due to the lack of common or homogeneous infrastructures. The *Financial Markets Action Plan*⁶ and the *Cross-border Credit Transfers Directive*⁷ already provide a legal basis to improve client's information transparency⁸, establish transfer timing deadlines⁹ and invoicing procedures¹⁰, and act therefore as a blueprint for the restructuring process of the credit system in all Member States, even if not all Member States have as yet adopted the legislation¹¹.

However this official action is not enough. Banks, on their side, are supposed to implement the existing standards for international account numbering and payment instructions already established. Moreover, they are expected to reduce the existing gap between national and cross-border charges for credit transfers, to improve the general and detailed information to customers and to ensure interoperability for electronic means of payment no later than 1 January 2002. This depends ultimately on the development of the linkage between national retail payment systems to assure overall consumer confidence in e-commerce and to reduce the costs, time and risks implied for the users.

One of the best approaches relies on market surveys combined with voluntary co-operation throughout the banking sector. This will be especially important for the proposal of solutions. The Commission itself, whose comprehensive objectives¹² acquire even more importance in the view of the future enlargement of the EU, will propose a revision of the minimum exemption threshold for balance of payments statistics, below which cross-border payments need not to be reported. It will also finally examine in co-operation with the ESCB the various proposals made by banks on how to perform more efficiently and will prepare a Fraud Prevention Communication.

⁶ “Financial Services: Implementing the Framework for Financial Markets: Action Plan”, COM(1999)232, 11.05.99.

⁷ Cross-border credit transfers Directive (97/5/EC) of the European Parliament and the Council of 27 January 1997 entered into force on the 14th August 1999.

⁸ Full transparency before and after the transfer. Indication in writing of the time delay of accreditation in the beneficiary's account, the calculation basis and total amount of charges, redress procedures information and reference identification number of the transfer.

⁹ Accreditation within six working days unless different agreement.

¹⁰ No unauthorised double charging and a reimbursement ceiling of 12 500 ECU for lost transfers.

¹¹ Italy has still to do so.

¹² Cost-effectiveness of payments, reduction of cross-border credit transfers charges, reduction of settlement times, implementation of existing standards, operation fees to be borne entirely by the originator of the transaction, open access to cross-border payment systems and adoption of the improvements by 1.1.2002.

The aims of this study are to analyse the present situation in some selected European financial institutions and to indicate practical solutions. It investigates how the charges for cross-border retail credit transfers, and eventually for other payment systems used¹³, are split between the different operational phases of the payment, and how the costs are divided between the participating banks. This will reveal where the main roots of the costs come from, and eventually *how* they can be reduced – *if* they can be reduced.

The first part of the paper aims to give an outlook on the different cross-border payment mechanisms and how they work operationally. Most of the difficulties, which cause high charges on payments, may be attributed to operational problems in transmitting instructions, or to incompatibilities between the different international systems used.

¹³ For example, cheques.

CHAPTER I: THEORETICAL PERSPECTIVES AND CONSIDERATIONS

1. Retail payment systems

Retail payment systems¹⁴ include several different methods of processing payment orders ranging from cash transactions to the use of personal, company and bank cheques; credit and debit cards; bank transfers; international money orders; credit transfers and remote payments. In this paper priority is given to retail cross-border credit transfers because action¹⁵ and intervention is especially required in this field for the following reasons:

- Within the Monetary Union the price of cross-border transfers should be aligned to the charges for national transfers¹⁶;
- The settlement time for cross-border transfers should be aligned to the time needed to finalise national transfers¹⁷;
- The charges for cross-border transfers should be borne only by the originator of the transaction and no fee should be charged to the beneficiary of the transaction;
- The number of financial intermediaries involved in the process should decrease;
- The volume of cross-border transactions should increase compared to intra-national ones to reach the critical mass.

The differences between payment systems depends on the level of service provided from bank to bank¹⁸ due to different internal cost structures and due to different arrangements which have been concluded throughout the banking system. The most important services¹⁹ which should be borne to finalise a transaction include the:

- **Possibility of reimbursement.** In the event of late finalisation of the transaction, the bank may pay a reimbursement fee to the customer.

¹⁴ "Retail payments usually involve an individual as one counterpart and an individual, firm or government agency as the other. The counterparts can be engaged either in a transaction-by-transaction relationship involving one-time payments or in a contractual relationship involving recurring payments."..."Retail payments are generally classified as cash payments or non-cash payments, with the latter generally categorised as paper-based or electronic. Unlike cash payments, non-cash payments usually involve a transfer of value between financial institutions and require the counterparts and one or both of their financial institutions to be specified. Non-cash payment instruments can be subclassified generically into cheque payments, direct funds transfers and card payments, all of which involve a complex array of rules and procedures." (Committee on payment and settlement systems, *Retail Payment in selected countries: A comparative study*, September 1999, BIS, Switzerland, pp.2/3)

¹⁵ Cross-border credit transfers Directive (95/5/EC).

¹⁶ The possibility of aligning the charges on cross-border transfers with national ones depends heavily on the volume of payments that can be reached so as to achieve a "critical mass" during the process.

¹⁷ The effective time needed depends on the domestic clearing, on the reporting requirements, on the different business days of all institutions in the payment chain and on the cut-off times.

¹⁸ Especially for the countries which haven't yet adopted the new recommendations.

¹⁹ N. Goulding, "Requirements of an unified european payment system for Small and Medium sized business (SMEs)", 1995.

- **Level of charges.** This is the most controversial issue because how charges are constructed is rarely transparent; nor are where they come from and how a proper intervention to reduce these costs could be needed.
- **The avoidance of double charging.** Double charging occurs when the originator of the transaction pays all the charges requested but nevertheless the intermediary or the destination bank deducts a fee from the transferred amount. The introduction of the “OUR” mode permits the charging of the totality of the costs only to the originator of the transaction. In the case where the customer chooses the “BEN” mode the costs are split between the originator and the beneficiary.
- **Certainty of the finalisation of the transaction.** Once the customer has entered the transfer order to the bank, he should be sure that the transaction will be successfully completed within the agreed timetable and for the cost agreed in advance.
- **Liability for inefficiencies.** The bank should be totally responsible for the successful completion of the operation once it has been initiated. If the bank fails to meet its obligations for internal reasons the customer should be entirely redressed. If the failure is not due to the internal difficulties of the bank, but to other institutions in the transaction chain, the bank can obtain redress from the participants responsible. This gives the customer certainty that the bank will fulfil its requirements.
- **Redress mechanism.** Simple and transparent redress mechanism rules should be provided in advance by the financial institution to the customer.

2. Credit transfers

Credit transfers are finalised transactions transferring funds from the account of a sender to the account of a beneficiary. Charges on cross-border retail credit transfers are greater than the corresponding charges for domestic ones. This is largely because the latter are computed per transaction, independent of the value of the transfer, while cross-border charges are commonly calculated as a percentage of the value transferred. Although the level of charges has declined over recent years they remain high for low transactions, especially when compared with the charges for national payments.

The implementation of the Cross-border Credit Transfers Directive²⁰, and the monitoring of this process by the Commission for all the Member States, is crucial in this context. In addition to the relatively high cost structure, both the processing execution time and the transparency of information need improvement. The main points that have been addressed and partially solved, but which need to be kept under consideration include:

- **Cross-border credit transfers** should be performed in a time-scale clearly defined in advance, which should be communicated to the customer,
- **The tariff charged** for the credit transaction should also be clearly determined and communicated to the customer in advance²¹,

²⁰ The Cross-border Credit Transfers Directive covers transfers up to €50 000.

²¹ Without bilateral agreements between financial institutions involved in the transaction the debiting of all the costs to the originator of the payment is quite impossible because the destination bank has to transmit its costs to the initiator bank and this is possible only after the payment has been completely processed. The total costs are in fact not known before the whole process will be over. Agreements allow the definitive costs to be agreed on a forfeit basis, which can be debited during the transition.

- **Application of the “OUR mode”**, which implies that fees for the transaction should be charged entirely on the originator’s account, and no double charging by the originator or beneficiary institution is allowed. Exemptions in this field have to be defined, stipulated and communicated in advance,
- **Application of the “money back” guarantee** up to €12 500 for lost transfers. This threshold has been criticised for being insufficient and non-preventive. Two possible solutions are:
 - a) an increase in the threshold to a level which covers the transaction amount; or
 - b) the development of a two-stage mechanism. Under the latter there would be complete compensation of the transaction up to a determined limit; and, for higher amounts, a reimbursement calculated as a percentage of the total amount transferred.

The best solution would be to extend the reimbursement procedures following the already existing compensation systems for injured parties performed by S.W.I.F.T.²². This assumes the total financial responsibility when the accreditation of a transaction has been delayed or incorrectly performed due to internal causes²³. Currently, this system has the disadvantage of being limited to transmissions via S.W.I.F.T. A generalisation of this approach involving direct responsibility of the institutions for the transactions would be a satisfactory solution²⁴.

- **Application of the technical standards** developed by the ECBS²⁵. Of particular importance are the International Bank Account Number²⁶ – IBAN – and the International Payment Instruction – IPI. The IBAN²⁷ comprises existing account numbers, a country code and a check digit, which is the key to check the validity of the beneficiary's account number. It helps banks to automate the cross-border transaction process and to route the order directly to the beneficiary’s institution by adding to the existing numbers for the transfer a country code and two control digits. The IPI, on the other hand, is a standard form for paper-based payment orders, which provides the correspondent bank²⁸ in the transaction with the necessary information in IBAN format for processing the payment²⁹. It is pre-personalised by the beneficiary who sends it to the originator together with the invoice. The latter fills in his account number and possibly missing information, signs the form and passes it to his bank in paper-form to create an electronic transfer through

²² Society for Worldwide Interbank Financial Telecommunication.

²³ www.europa.eu.int/comm/dg24/library/surveys/sur06-02-en.pdf produced by Beuc-Test-Achats for Health and Consumer Protection DG.

²⁴ www.swift.com

²⁵ European Committee for Banking Standards.

²⁶ Beneficiary account identifier. When the account identifier is provided in national form, its format must be in conformity with the format in use in the destination country.

²⁷ "The benefits of the IPI for the beneficiary customer are as follows: potentially faster receipt, simpler processes, easy reconciliation", <http://www.ecbs.org>.

²⁸ "Correspondent banking is an arrangement under which one bank (correspondent) holds deposits of other banks (respondent) and provides payment and other services to those respondent banks; such arrangements may also be known as agency relationships in some domestic context", (Committee on payment and settlement systems, *Retail Payment in selected countries: A comparative study*, September 1999, BIS, Switzerland, pp.29)

²⁹ This represents one of the more crucial measures, which has to be introduced because it reduces manual intervention, which, as it will be shown afterwards, is one of the main cost roots.

S.W.I.F.T. standards³⁰. It enables customers to enter payment orders through electronic banking procedures³¹ by phone or Internet.

- Extension of **the fixed threshold amount** below which cross-border payments do not need to be reported in the balance-of-payments statistics. This avoids the additional cost of processing the transfer, reduces routing time, and facilitates a simplification of balance of payments statistics, the harmonisation of which is currently under way.
- The development of **automated international linkages** improves internal processing by reducing manual intervention to a minimum. It makes possible *straight-through processing* – STP³² – of internal systems, and the use of STP-capable message formats³³; and *overarching* or *combined network solutions* ameliorate cross-border linkages.

To avoid price fixing it is preferable for the originator and beneficiary banks not to have direct bilateral contractual agreements, but for the transfer to be dealt with by a chain of institutions, of which each pair linked by bilateral agreements.

Normally at least four institutions are involved in the transfer process. The originator's bank sends the payment order to the first intermediary bank located in the same member country as the originator's bank. The intermediary institution, which can be, but need not be an ACH³⁴, sends the order cross-border to the intermediary bank in the beneficiary's member state (correspondent banking), which can also be an automated clearing house. Finally the second intermediary will send the order to the destination bank. The first link (originator's bank → first intermediary) and the second link (second intermediary → destination bank) are handled through domestic clearing systems and use national communication and transmission networks.

On the other hand, the greater the number of banks implicated in the transaction, the more the costs increase. One solution might be to minimise the number of banks involved in the chain, and to cover the institutional framework and transaction rules by multilateral agreements rather than bilateral ones.

³⁰ COMMISSION OF THE EUROPEAN COMMUNITIES, (31.01.2000), *Communication from the Commission to the Council and the European Parliament. Retail payments in the Internal market*, Brussels.

³¹ "Banking services that a financial institution's retail customer can access by telephone, television, terminal or personal computer as a telecommunication link to its computer centre." (Committee on payment and settlement systems, *Retail Payment in selected countries: A comparative study*, September 1999, BIS, Switzerland, pp.30)

³² STP takes as input text-free data and turns it into a coded format extracting relevant information such as bank name, address, city, country and a qualified account number. This information is used to consult reference databases. The program helps to complete unstructured payment messages with the benefit that payment systems can execute the initially incomplete orders through simple interface architecture.

³³ "Retail Payments in the Internal Market", Communication from the Commission to the Council and the European Parliament, COM(2000)36 final, Brussels, 31.01.2000.

³⁴ Automated Clearing Houses.

3. Processing cross-border credit transfers

There are several systems used to transact credit transfers:

*Those based on correspondent banking (S.W.I.F.T...)*³⁵

In these, the sender and the receiver are financial institutions and not ACHs. If they were to form the basis of a new system, each national system would need to be adapted so as to add cross-border transaction capabilities and extend the clearing services. The main disadvantages of this solution are:

- the purely local specifications are so complex that standardisation would be a major task;
- there would be a danger of over-capacity due to the number of single systems involved.

Open or closed clubs between particular institutions (e.g. European Banking Association)

Several banks have already tried to built up cross-border arrangements with partner institutions in Europe; but this has the disadvantage of being limited only to a group of banks with related cost effects on the services provided

*Those based on direct or remote*³⁶ *links to automated clearing houses ACHs*³⁷ *(Target,..)*

It would be possible to create automatic links between national systems through an ACHs network. The problem of standardisation would not be great. On the other hand, a great deal of work would be needed to identify and create the basic criteria of the network.

Supra-European payment system (credit cards,..)

Interoperability exists at the basic level because the systems are already internationally structured. On the other hand, cross border retail payments only involve a small fraction of the transactions compared to national payments and they rarely justify high investment in cross-border processing systems.

3.1. Overarching solutions

Overarching solutions would connect all the payment systems of the participating institutions across the borders. They could also involve the setting up of a centralised system to clear cross-border retail payments.

3.1.1. Target

The Target³⁸ system delivers almost instantly finalised cross-border payments from the originator to the beneficiary bank. It is a pan-European system, which clears Euro payments across the banking industry, and was set up by the Central Banks to ensure the execution of a single monetary policy. It is composed of two main components:

³⁵ Banks that have exchanged authorised signature lists and/or codes, and/or engaged in an exchange of services, and/or an account or accounts with each other (<http://eurodic.ip.lu>).

³⁶ A cross-border payment can be done directly or through remote access depending on whether the originator and the beneficiary of the transaction meet physically when the payment takes place initially.

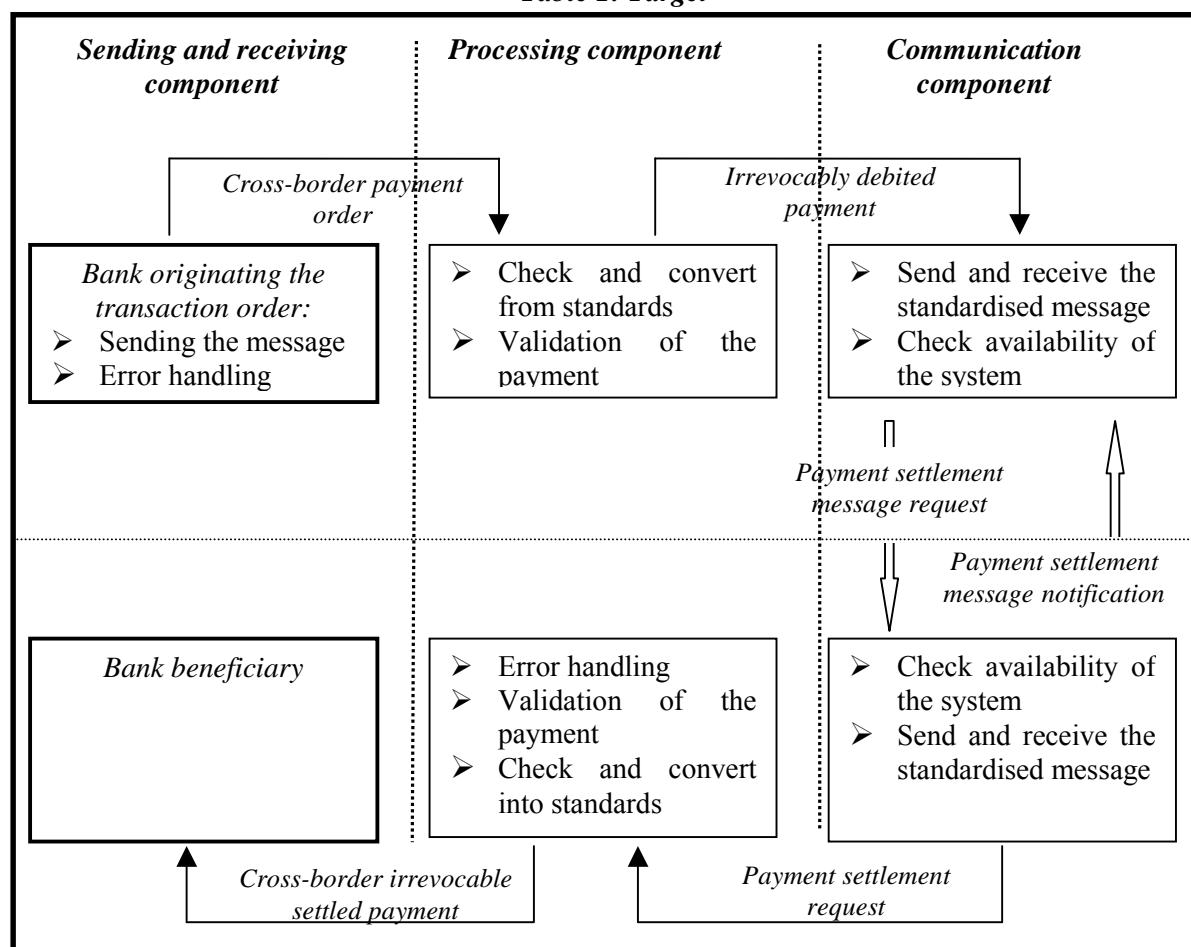
³⁷ “An electronic clearing system, based on a set of procedures, whereby credit and financial institutions present and exchange data and/or documents relating to cross-border credit transfers, primarily via magnetic media or telecommunications networks and handled by a data-processing center” (<http://eurodic.ip.lu>).

³⁸ Trans-European Automated Real-time Gross Settlement Express Transfer System. It began operations on January 1999.

- ◆ 15 national Real Time Gross Settlement (RTGS)³⁹ systems disposed in each country which process immediately and irrevocably the transactions one by one (see Annex 4);
- ◆ the European Central Bank payment mechanism (EPM).

Both components are interconnected by a common and standardised mechanism, named Interlink, that provides all the participants with a uniform platform and interface⁴⁰ for payments. This means that each transaction involves a minimum of two commercial banks, two National Central Banks, two real-time gross settlement systems, two Interlink systems and the telecommunication system as linkage⁴¹.

Table 1: Target



<http://www.ecb.int/taret/bt/tath0416.htm>

It was designed for all values of payment; but in fact it provides an adequate solution only for wholesale payments. The cost of real-time, non-batch⁴² processing is not an economic solution for retail payments. The potentially large number would be too high in relation to

³⁹ <http://www.treasury-management.com/TOPICS/ABN/a4b.htm>

⁴⁰ For example SWIFTAlliance Entry is a low cost interface easy to install.

⁴¹ <http://www.bankrelations.co.uk/publications/articles/how.htm>

⁴² The transmission or processing of payment orders and instructions continuously and not as a set at discrete intervals of time.

the capacity of the Target system⁴³. A further problem would be the difficulty of tracing the payment order if it got delayed or wrongly routed during the process chain.

Even if the system guarantees finalisation of the transaction in approximately 30 minutes, it represents a complementary solution in case of urgency, and its use is always limited to an explicit request of the customer⁴⁴. The orders transmitted through the Interlink system are expressed in the single currency and are processed irrevocably from the originator's account in the bank of provenance to the originating national RTGS system.

The existence of a unique code for each payment passing through this system facilitates the identification of the order and its handling, and avoids any risks of double crediting. At this stage the system will check, on the same day in which the payment has been issued, the syntax of the transaction order and the indicated value date according to the internally defined standards. The system gives notification if the message has not been processed due to the impossibility of identifying the order, of content problems or of internal system difficulties⁴⁵; and also when the payment message has been received. The receipt of the confirmation message is proof that the process has been successfully completed and the amount accredited. An example of the flow of messages for settlement is shown in table 1.

Table 2: Payment statistics
Payment instructions processed by TARGET :
value of transactions (EUR billions)

| | 1999 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | 99 AV |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|----------|
| TARGET | | | | | | | | | | | | | | |
| All TARGET payments | | | | | | | | | | | | | | |
| Total value | 20 839 | 18 869 | 20 996 | 20 300 | 18 253 | 20 308 | 20 326 | 18 561 | 19 459 | 20 248 | 20 319 | 20 994 | | |
| Daily average | 1 042 | 943 | 913 | 923 | 869 | 923 | 924 | 844 | 885 | 964 | 924 | 954 | 925 | |
| Cross-border TARGET payments | | | | | | | | | | | | | | |
| Total value | 7 107 | 7 006 | 7 857 | 7 704 | 7 005 | 8 129 | 8 088 | 7 526 | 7 751 | 8 415 | 8 348 | 8 300 | | |
| Daily average | 355 | 350 | 342 | 350 | 334 | 370 | 368 | 342 | 352 | 401 | 379 | 377 | 360 | |
| Domestic TARGET payments | | | | | | | | | | | | | | |
| Total value | 13 732 | 11 863 | 13 139 | 12 596 | 11 248 | 12 179 | 12 238 | 11 035 | 11 708 | 11 833 | 11 971 | 12 694 | | |
| Daily average | 687 | 593 | 571 | 573 | 536 | 554 | 556 | 502 | 532 | 563 | 544 | 577 | 565 | |

Source: European Central Bank - Statistics

On the sender's side, the credit institution sends a cross-border payment order via the RTGS-system to the processing component of the system. Here, the payment is validated if the system is available to receive the order, the amount is debited from the ordinary account and credited to the beneficiary's account. After this, the order is considered irrevocably processed and the amount cannot be withdrawn. The internal Interlink system creates a

⁴³ "Retail Payments in the Internal Market", Communication from the Commission to the Council and the European Parliament, COM(2000)36 final, Brussels, 31.01.2000.

⁴⁴ In most of the countries Target is used only and exclusively on request of the customer due to its cost. In Italy, for example, the order for a credit transfer is executed between two central banks. The message is addressed by the originator bank to the Italian Central Bank and the latter sends the accreditation order to the Central Bank of the destination country in favour of the beneficiary's bank.

⁴⁵ <http://www.ecb.int/target/bt/tab0424.htm>

reference for the payment order and converts the domestic message into a standard one. At this stage the communication component of the system creates an identification and authentication code for the message and sends the settlement request order to the beneficiary institution.

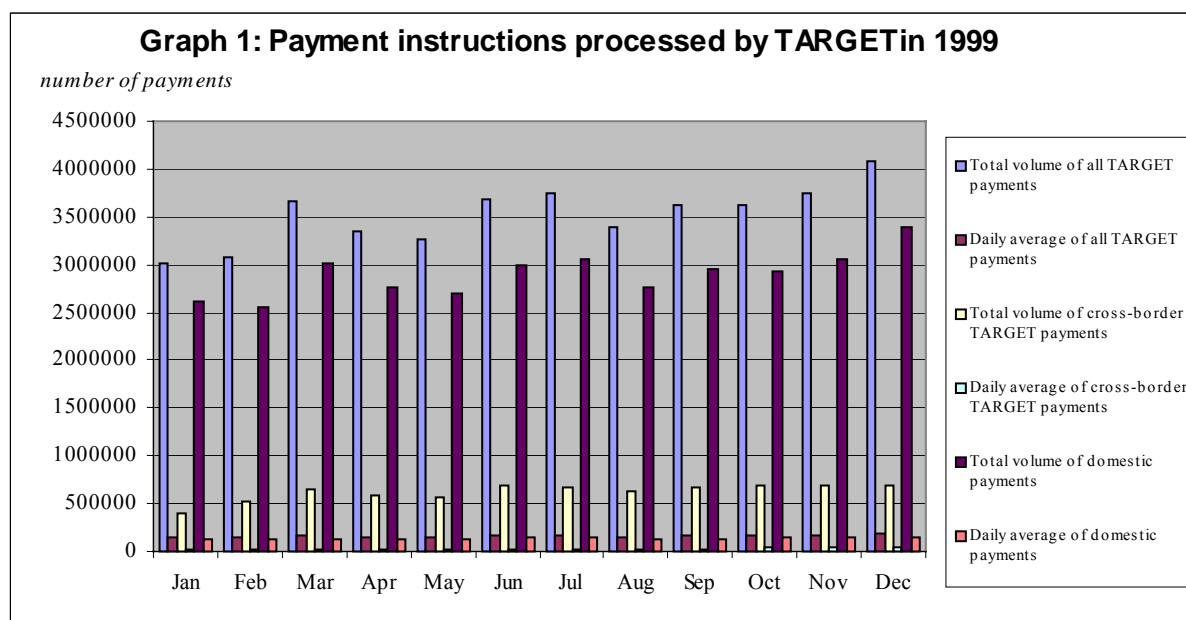
On the receiver's side the settlement order is processed by the communication component and it checks for the correct authentication. Afterwards it is sent to the processing component, which converts it into a domestic format, validates the data referring to the credit institution and the internal reference and sends it to the beneficiary institution for crediting⁴⁶. If the process is not fulfilled at some stages a negative settlement payment message notification is sent back; if it is, a positive one.

One of the advantages of the system is that, at the end of the day, a list of the payment messages is sent, indicating those which have been processed successfully. In the case of payments which have not been finalised, the system provides a procedure to detect the errors and the causes. There are many other positive features of the procedure, among which are:

- the *end-to-end* processing scheme; and
- the *control procedure* at the end of the day which ensures that all the bilateral operations match and that they have been correctly processed.

Target is still operating below its full capacity. Table 2 shows the value of the transactions processed by it during the year 1999.

Graph 1 highlights the expansion of Target during the year 1999 in terms of number of payment orders processed. We can see how the increase of the processing of cross-border payments is more consistent compared with the other payments types. In fact cross-border orders increased by 73% from January to December, compared to the relatively modest increase (29.5%) in domestic payments.



Source: ECB – Payment Statistics

⁴⁶ <http://www.ecb.int/taret/bt/tath0416.htm>

3.1.2. S.W.I.F.T.

Correspondent banking will remain the method most used to process cross-border payments in the European Union. An existing system always has the advantage of being well known, and resistance to change is one of the most difficult aspects to manage especially for small banks. They are not organisationally and financially prepared to face the new conditions and prefer to rely on existing relations. Correspondent banking is quite slow and expensive, either because manual intervention is needed to process the payment order with increasing effects on the costs, or because the transaction process passes through many different banking institutions. Each of them adds different national data requirements, which are unstandardised and therefore time-consuming and expensive. The finalisation of payments is arranged through the use of the national banking network system (inter-banking) which is one of the main sources of the inefficiencies involved in retail payment processing. Correspondent banking is, in fact, mainly based on bilateral agreements between the different national and cross-border institutions involved. This makes possible an adequate geographical coverage of the network; but has a clear impact on the costs. Arrangements within a group of institutions always have the negative aspect of being closed and limited to the members of the group. There is therefore a considerable risk of high costs because the system does not reach a critical mass.

Meanwhile individual banks determine the final charges for credit transfers, as for the other means of payment; and some institutions add extra fees for transfers such as the cost of currency conversion towards the Euro – which should already have been eliminated. The most common disadvantages of correspondent banking are:

- Several banks involved in the transaction process, which have all to be compensated (\hat{costs});
- Difficulties in finalising the transaction on the same day as the initiation of the process (\hat{time});
- Difficulties in standardising the process, due to many intermediaries (\hat{costs});
- The possibility of losses and double charging (\hat{time} , \hat{costs}).

Some banks have developed their own software, procedures and interfaces to handle cross-border payments, with the result that the format used in each institution to process the order rarely corresponds to the one used in foreign banks or even in other national institutions. Considering that in some cases (a good percentage) the customer does not have all the necessary data to finalise the cross-border transaction, the orders have to be corrected at high cost by the bank itself, and converted into standardised formats.

S.W.I.F.T. is building an integrating system to improve the level of service to achieve straight-through processing⁴⁷ and batch-file processing⁴⁸. It is a global bank-owned and controlled co-operative network supplying secure message services and interface software at reduced customer costs and risks to over 7 000 financial institutions. It was set up in 1973 based in Brussels, and currently dominates the field of inter-bank messaging accepted world-wide for low value cross-border transfers, but remains based on correspondent banking. It supports business ranging from payments, securities, treasury and trade

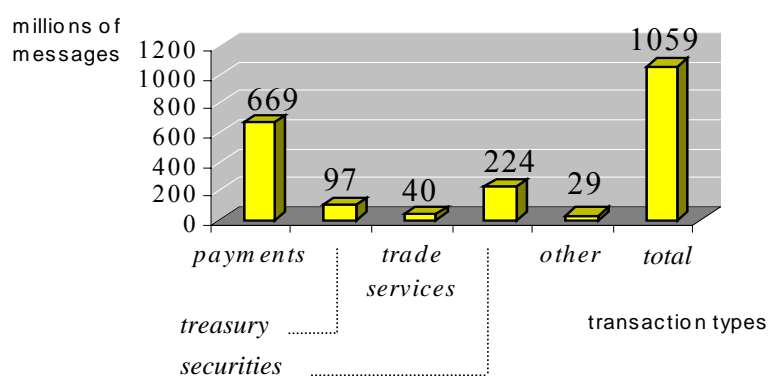
⁴⁷ The repairing or handling of a message without manual intervention.

⁴⁸ The transmission or processing of a group of payment orders and/or securities transfer instructions as a set at discrete intervals of time. Only transactions with common characteristics can be batched.

services; and permits productivity gains through the automation of manual procedures from an end-to-end basis with an indirect effect of supporting and standardising internal reporting procedures. Furthermore, bilateral netting services guarantee statements about net positions of the single participant to reduce inefficiencies and permit control on traffic flows. The system ensures a secure access through authentication of the user and confidentiality of the messages by encryption procedures. S.W.I.F.T. facilitates the standardisation of content and structure of information flows and acts as promoter for the automation of processes, once each participant has defined his own procedures.

The customer is required to fill in an international payment form, which is more complicated than the corresponding one for national payments. Furthermore, the local bank charges a fee for international transfers and needs some days to process the order until it reaches the final stage.

Graph: 2
Traffic distribution by market in millions of messages



Graph 2 highlights the traffic distribution by market (in millions of messages); and how payments are mostly processed with respect to trade services or securities (though this was not the category which had the highest growth rate in recent years). Payments grew in fact on average approximately by 14%, more than the trade service growth of 12% but considerably lower than the security increase of 85%⁴⁹.

The system⁵⁰ already has many positive features (see Table 3).

A payment (customer transaction) can be executed only when the actual ownership of the money to be transacted can be transferred *through an account which one institution services for the other*⁵¹. If no direct account relationship exists, the chain has to be extended through correspondent or clearing systems. In this case between institution A and B either A services a «vostro account» to B, or B services a «nostro account» to A, or A and B are linked by a clearing system.

⁴⁹ <http://www.swift.com/general/pages/factsfig.htm>

⁵⁰ It operates the EBA processing service and provides the network infrastructure not only for EBA, but even for most of the national clearing system and between the participating central banks in Target.

⁵¹ S.W.I.F.T., *Straight-through-processing (STP) Payments, Automation Guide, How to improve straight-through-processing of cross-border S.W.I.F.T. payment messages.*

Correspondent banking transactions may be finalised in two ways, through the cover or the serial method. Choosing the right way of transaction makes possible a higher straight-through processing rate.

- Under the **cover method**, the customer payment instruction is sent separately from the transfer instruction of the funds,
- Under the **serial method** both instructions are sent together.

Table 3: Positive features of S.W.I.F.T. to be kept under consideration:

| features | specifications |
|---|--|
| The system has developed standards ⁵² and processing rules for each message type as payment or settlement instructions | <ul style="list-style-type: none"> • To improve the knowledge of the other participant’s transaction processes • To determine and include specific market practices • To evolve later from multiple to a single standard⁵³ with a harmonised syntax generally applicable which permits the adaptation to different environments. |
| Determination of the standards through multilateral agreements rather than bilateral ones | <ul style="list-style-type: none"> • To enhance the possible harmonisation of processing rules between participants • To increase the automation process (for example the automatic generation of the validation of the transaction, the mapping process etc.) • To enable interactivity⁵⁴ through the network |
| Services provided by the system which increase the straight-through-processing capabilities | <ul style="list-style-type: none"> • BIC Directory: an integrated system of directories in which the names, and addresses of the correspondent financial institutions all over the world are listed • BIC Database Plus: reports the clearing codes of most of the countries |
| Message confidentiality and authentication | <ul style="list-style-type: none"> • Every message is encrypted to ensure illegibility from the transmission stage to the storage • Every message is authenticated using a secret key |
| Developing of an end-to-end process rather than a user-to-user one and global connectivity | <ul style="list-style-type: none"> • To consider all the parties involved in the transaction process from the initiator to the final recipient. For a credit transfer it means from the ordering client to the beneficiary. • To enable access to all the participants involved |

Source: <http://www.S.W.I.F.T..com/cover.htm>

⁵² Standard components of the system and common message standards (Service Level Agreements).

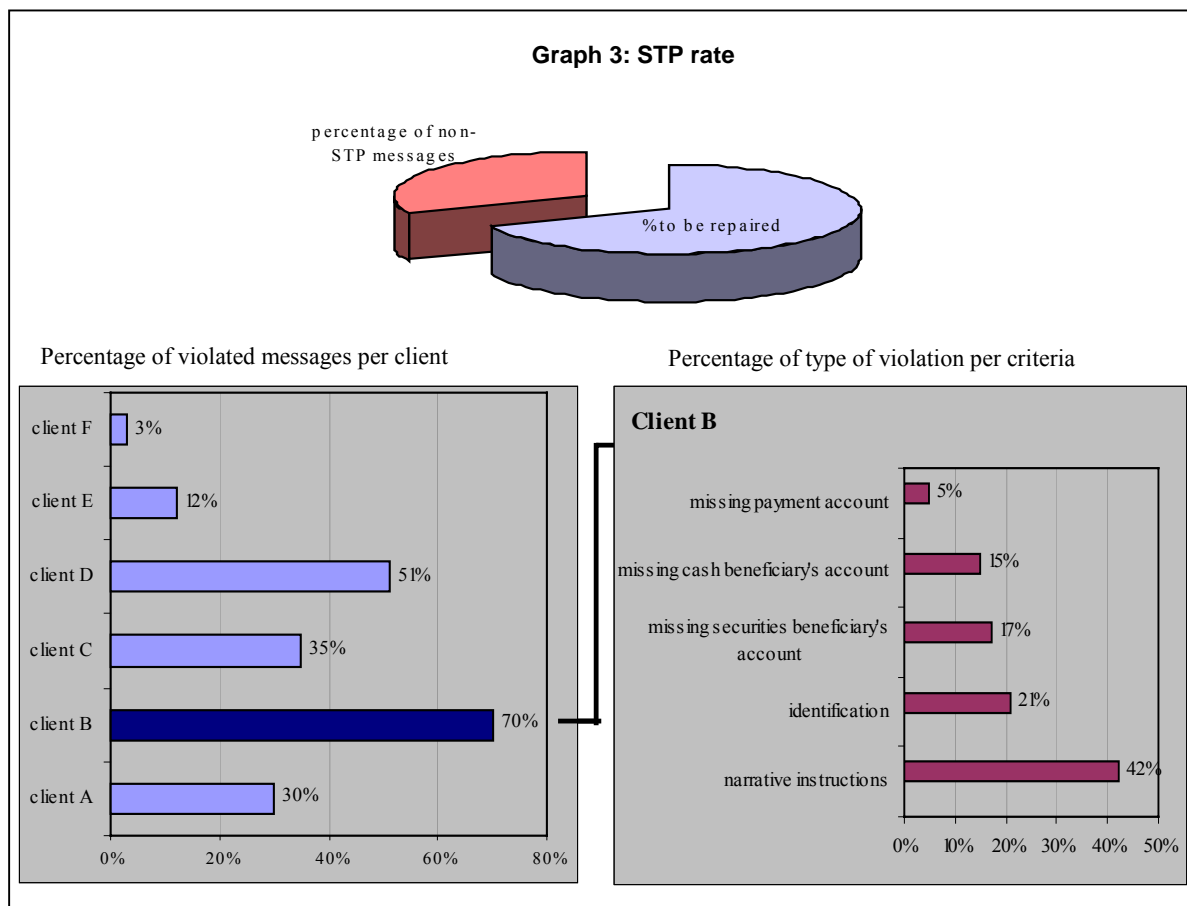
⁵³ A communication environment through a global language that enables a high degree of automation reducing the processing time because it avoids multiple conversion between different existing standards.

⁵⁴ Real-time exchange of inputs and outputs through the network.

The latter is technically simpler and normally much more often used for national payments rather than for cross-border ones. It has the disadvantage of delaying the processing. The cover method allows, on the other hand, full control of the entire process, because when the recipient gets the customer instruction, he is in a position to monitor the transaction end-to-end, so saving time.

Analysing the in- and outgoing message flow, it may be helpful to identify the areas where automation may be increased and may reduce the resources spent for repairing, investigating and querying, so that price reduction can be negotiated. The straight-through-processing rate is calculated considering the number of messages that have to be in some way repaired as shown by graph 3. *Sharing the cost of infrastructure development and support across several thousand institutions contributes to a low cost base. Route- and volume based pricing ensures that traffic growth translates into an even lower average message price*⁵⁵.

The costs of processing a message are not always dependent on the volume or the route – a flat rate may be charged. The prices for national traffic are €7.5 per 100 base messages and for intra-institution traffic the flat rate accounts for €8.75 per 100 base messages (for details on pricing see Annex 5).



Source: STP Watch

⁵⁵ <http://www.swift.com/general/pages/glance.htm>

3.2. Combined network solutions

The Automate Clearing House Network (ACH⁵⁶) is an electronic network for payments and transactions used by individuals and companies as well as by governments. The linkage between ACHs from different countries permits payments to be processed automatically, cleared and settled across borders⁵⁷. Information exchange and electronic payments through ACHs provide more efficient cash management processing capabilities and lower costs compared to the paper-based transaction methods. One example of an excellent ACH network is in the United States, where over 95% of all financial institutions participate in the network. Cross-border payments Standard Entry Class Codes have been created to be used by the originator and the recipient of the orders, providing formatting efficiencies. The system allows national customers to submit payment instructions in any specific format, and will convert these into standard payment messages, suitable to be distributed and processed abroad.

It is therefore possible that the creation of a separate European ACH, developed by the governments in association with the banking system, would represent an optimum solution. At present, only a few ACHs are connected to the system, and their transactions amounts are quite low; but increasingly more foreign-based banks have a remote access to the clearing houses. However, due to the initial investment required only large banks can really afford to participate.

A first step towards an EU-ACH would be to create association network solutions like the EBA⁵⁸ system. This initiative involves 100 major European banks and is managed by AEB Clearing SAS, a company whose members are the clearing institutions themselves. To be accepted as a member of the system, the institution has to respect rating and capital requirements. EBA and S.W.I.F.T. will supervise auditing internal processes and a prudential deposit has to be paid to meet the liquidity targets in case of non-fulfilment of one or more members. It has developed a cross-border Low Value Payment (LVP) system to shorten execution times; and it applies competitive charges⁵⁹ by exchanging payment messages through the S.W.I.F.T. network. The processing cycle is opened and closed each day when each clearing institution balances its net debtor position with a single payment.

The participants send payment message orders to the system up to a specific fixed time during the day t for processing and settlement on day $t+1$, but all orders sent after this deadline will be kept "in memory" by the system until the day $t+1$. The originator's bank receives daily the balance of the sent and received orders. To enable links to non-participating banks, it is sufficient to send a message to the EBA participating bank in the destination country with the accreditation order in favour of the beneficiary's institution. The channel works for transactions to America and to non-EU countries. The cost structure is also less expensive due to the simple end-to-end structure and S.W.I.F.T.-based technology.

⁵⁶ "An organisation for the automated processing of payments, which may be a part of the domestic clearing system and act as an entry/exit point for cross-border payments.", ECBS, (08.99), *European Banking Standard and implementation guide for credit transfers*, EBS2000, Vers.3.

⁵⁷ To process ACH transactions the following information is needed: the account holder name, the financial institution routing number, the account number, the amount and the date of the transaction.

⁵⁸ The ECU Banker Association was transformed from the initial ECU clearing system to an Euro payment system with the aim to clear financial transactions resulting from trade business by 1999.

⁵⁹ The pricing of the process includes a connection fee and a charge per transaction.

Table 4: Payment statistics

Payment instructions processed: Volume of transactions (number of payments)

| 1999 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Euro 1 (EBA) | | | | | | | | | | | | |
| Total vol. | 855 032 | 1 062 263 | 1 389 394 | 1 317 191 | 1 335 791 | 1 597 300 | 1 591 202 | 1 457 434 | 1 678 114 | 1 742 696 | 1 788 771 | 1 831 096 |
| Daily av. | 42 752 | 53 113 | 60 408 | 59 872 | 63 609 | 72 605 | 72 327 | 66 247 | 76 278 | 82 986 | 81.308 | 83 232 |

Source: ECB

Payment instructions processed: Value of transactions (EUR billions)

| 1999 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | 99 AV | |
|----------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Euro 1 (EBA) | | | | | | | | | | | | | | |
| Total value | | 3 441 | 3 456 | 4 103 | 3 786 | 3 269 | 3 722 | 3 595 | 3 601 | 3 860 | 4 027 | 3 843 | 3 512 | |
| Daily average | | 172 | 173 | 178 | 172 | 156 | 169 | 163 | 164 | 175 | 192 | 175 | 160 | 171 |

Source: ECB

Based on reduced clearing costs, prices for customers will depend on the bank internal costs. In this field more action is required to harmonise the final price structure for the Euro area. Several banks have already tried to built up cross-border arrangements with partner institutions in Europe; but this has the disadvantage of being limited only to a group of banks with related cost effects on the services provided⁶⁰.

Table 5: Characteristics of cross-border payments in the E.U.

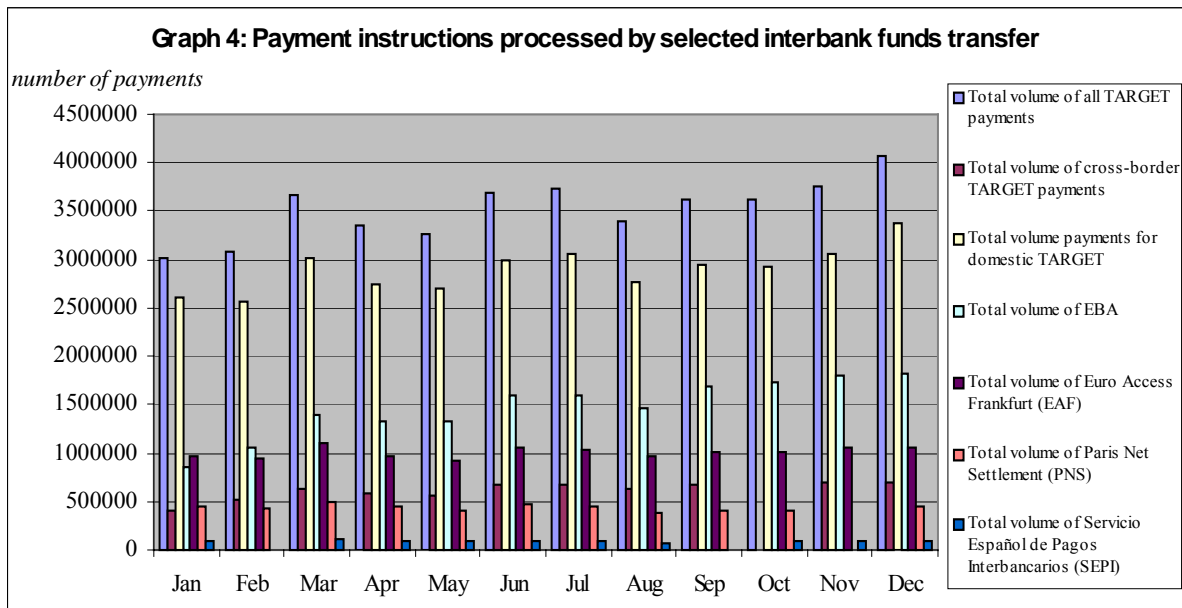
| | Payment type | Execution time from originator to beneficiary | coverage | Quality of the service |
|--|---|--|---|--------------------------------------|
| TARGET approach | valid for every payment amount but economically profitable only for wholesale transactions or urgent payments | Range of seconds depending on the institution involved | Accessible by 34000 banks including branches and subsidiaries throughout all the EU | Real-time and end-to-end processing |
| EBA clearing approach | Urgent and standard payments | One day | Limited number of banks | Depends on the institutions involved |
| Cross-border network arrangements | Urgent, standard and retail payments | Ranging from minutes to a few days | All banks in all countries through bilateral or multilateral agreements | Depends on the institutions involved |

Source: ABN-AMRO Bank

⁶⁰ An example is *EUORGIRO*, a cross-border payment service owned by a small group of banks which offer guaranteed payments at fixed dates and fixed rates and ensures security. There are two options for fast payments; the standard, guaranteed payment within three days and the express guaranteed payment within two days. A second example is *WATCH* developed by NACHA, the National Automated Clearing House Association, to process international, not only EU-area electronic payments, at a low cost based on an Internal Protocol. The system will operate through the national payment format or EDIFACT format which is then converted into the WATCH format at low costs due to the processing of high volumes in a batch mode. The implementation date will be in 2002. The financial institutions involved are a limited number involving not only European countries but also the U.S.A. and Australia.

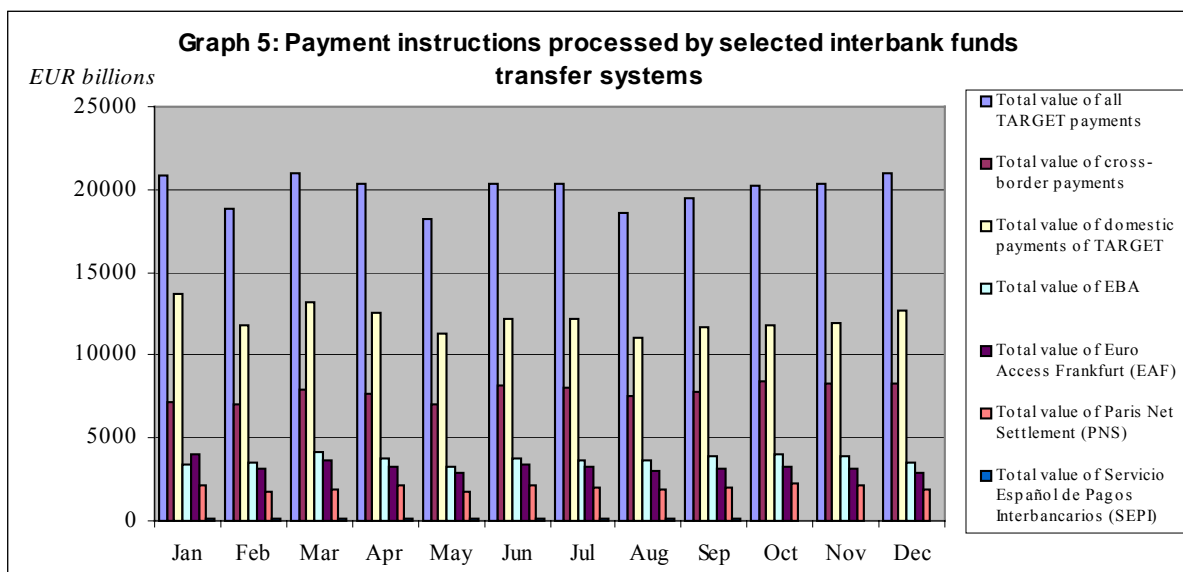
One disadvantage of the EBA system, which is still working below its full capacity, is the fact that it operates on a net settlement basis. It settles with the ECB only once a day, and it is up to each bank to decide when to make funds available. To make possible the availability of the funds on the same day it would be better to have a real-time settling procedure.

Considering the systems outlined above, Target is the one which transacts the highest number of payment orders, followed by EBA and by the national European settlement systems. This applies especially for wholesale transactions; but in case of retail payments this is reversed because correspondent banking is the most used approach, followed by EBA and Target. The following table gives the main characteristics of each transaction processing system.



Source: ECB – Payment Statistics 1999

Graphs 4 and 5 below show a comparison between some of the European selected inter-bank funds transfers systems.



Source: ECB – Payment Statistics 1999

As can be seen Target has a comprehensive capacity to process the orders related to the other systems, especially when considering the volume of national (domestic) payments as the number of payment orders transacted.

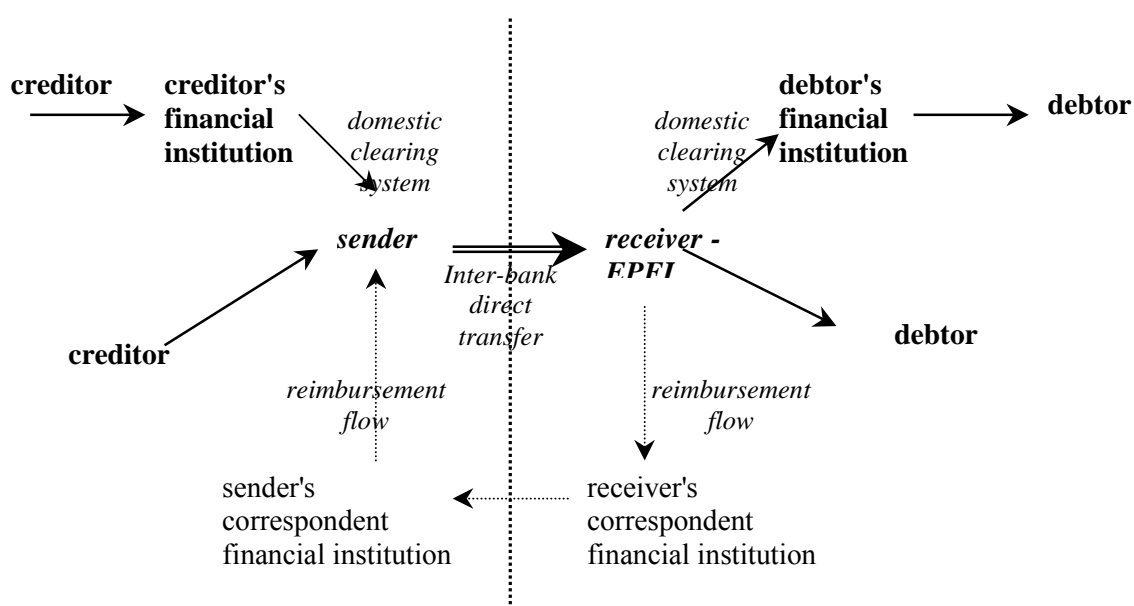
On the other hand, the volume of cross-border Target payments is particularly low with respect to national clearing systems. Even those have a widely different capacity of processing payment instructions: the total volume of «Servicio Español de Pagos» performs a relatively low volume of payment messages with respect to the other reported clearings.

The EBA system is quite generally used (graph 5) and its operation has slowly increased during the year 1999, accounting for +2.06% from the beginning of the year; with an average of 171 daily payments during the entire period. National settlement systems such as EAF, PNS, SEPI etc. account for a small part of the payment orders transacted due to limited internal capacity.

4. Cross-border automated direct debit

Direct debiting is expected to grow significantly over the next decade. Technical work is in progress to provide standard message types, high security levels and standard account identification formats. Direct debiting is, in fact, part of a more general process covering the collection of payments, and including the characteristics of invoices and cheques.

Diagram 1: Cross-border direct debits⁶¹



Source: ECBS, (02.2000), *Financial sector cross border automated direct debits*

The two main stages of the process are the *relationship setting up* and the following *operational process*. During the first part, two possible agreements may be concluded:

⁶¹ The parties involved in the process are: the debtor, the creditor, the debtor's bank, the creditor's bank and the Entry Point Financial Institution.

- through a *direct debit contract*, signed by the creditor and the creditor's bank; it has to be confirmed formally by the latter that the creditor is allowed to obtain a payment with the presentation of the direct debit instruction⁶².
- if a *direct debit mandate* between the debtor and the creditor is concluded, the latter is authorised to debit the debtor within pre-defined amount limits.

In some specific cases it will not be necessary to have a mandate before proceeding to the direct debiting (*non-pre-authorised direct debits*). Simplifying the processing cycle during the operational stage of the process, the creditor sends the direct debit order either directly to his financial institution or to the ACH.

The latter (creditor's bank or ACH) sends the order to the Entry Point Financial Institution⁶³ (see diagram 1) of the country of the debtor and forwards it to the debtor's institution to debit the debtor in favour of the creditor. Usually the debtor's bank checks the existence of a direct debit mandate between the debtor and the creditor and the coherence with the amount limits set in the mandate. In case some requirements do not fit, the institution may reject the order (e.g. lack of funds).

Diagram 1 highlights one of the flow models to perform direct debit. It could be modified depending on whether the sender or receiver are financial institutions (*correspondent banking*), are ACHs (*remote receipt or remote access from/to ACH*) or are both ACHs (*ACH links*).

As for credit transfers, direct debiting national systems suffer from a high degree of differentiation between the Member States, as highlighted by table 6. Identification requirements are normally dependent on a general inter-bank agreement on direct debits, signed by the national credit-sector associations, which determine the rules for the institutions and their responsibilities as liabilities. Admittance is normally conditional on the existence of an account at a national bank for the creditor and the existence of a contract between the creditor and his bank. The registration by an ACH is necessary in order to have a creditor's identification number and the possession of a written mandate by the debtor.

Apart from these requirements, which may be standardised, the main gap is in the different clearing and processing capabilities of the systems in use, which in some cases are too limited and in other cases perform to different time-cycles. On average, the processing is finalised within 4-5 days, considering the *advising of the debtor*, which needs to take place some days before the debiting is initiated and varies widely from country to country. It is followed by the *delivery of the data* by the creditor to his bank, normally in electronic form. All data are then processed and passed to the paying financial institution, while on the following day – entry day – the debtor's account is debited and the funds credited to the creditor's account (*domestic settlement*).

The duration of the process depends significantly on the electronic input of the data during the delivery phase, and on the rejection possibilities in case of incurred errors, which may range from revocation of the payment order to the insufficiency of funds or invalid sort

⁶² In some countries an ACH may be part of the contract.

⁶³ "An Entry Point Financial Institution is a Financial Institution in the country of the debtor's account, which assumes all the responsibilities of a local creditor's bank regarding a National Direct Debit Scheme of the debtor's country. This includes, for instance, compliance to the rules, financial responsibility for repaying rejected items, responsibility for any damage to the debtor or his bank.", ECBS, (02.2000), *Financial sector cross border automated direct debits*, TR 205, Version 2, Brussels, pp. 13.

codes. The difficulties arise because each national system has its own error codes and instructions.

Table 6: Direct debit schemes

| country | contract type | identification requirements | clearing cycle | documents and requirements |
|-----------------|----------------|---|----------------|--|
| A | pre-authorized | no | 1 day | |
| B | pre-authorized | general inter-bank agreement instruction submitted electronically | 4 days | all charges are borne by the creditor's bank |
| DK | pre-authorized | control by Danish ACH | 4 days | |
| FIN | pre-authorized | contract creditor/bank | 4 days | |
| F ⁶⁴ | pre-authorized | national identification number | 4 days | mandate |
| D ⁶⁵ | pre-authorized | no | 0-2 days | mandate, contract and inter-bank agreement to fulfil reporting requirements ⁶⁶ |
| GR | pre-authorized | contract between creditor and his bank | 1-2 days | |
| IRL | pre-authorized | In accordance with the Direct Debiting Scheme ⁶⁷ | 3 days | direct debit instruction form |
| I ⁶⁸ | pre-authorized | creditor has to obtain an identification number by the Italian sponsoring bank and set an agreement with his bank | 3 days | mandate |
| NL | pre-authorized | direct debit contracts have to be registered at Postbank | 24 hours | the resident's bank has to inform the Central Bank of individual transactions above €12 500. |
| N ⁶⁹ | pre-authorized | registration of the agreement | 1 day | |
| P | pre-authorized | rules by the general inter bank agreement on direct debiting ⁷⁰ | 4 days | |
| E | pre-authorized | a creditor identification number is needed, but no centralised registration is present | 2 days | |
| SW | pre-authorized | rules of the Autogiro scheme | 1 day | For transaction amount exceeding €9 046.04 and a creditor being a non-resident, reporting is due to the Central Bank |
| UK | pre-authorized | In accordance with the Direct Debiting Scheme | 3 days | direct debit instruction |

Source: ECBS, (02.2000), *Financial sector cross-border automated direct debits, TR205, Version 2*

⁶⁴ Avis de prélèvement normal.

⁶⁵ Abbuchungsauftragsverfahren.

⁶⁶ "In the case of the transaction amount exceeding 5 000 DEM and the creditor being a non-resident the creditor's bank should ...inform the debtor that reporting requirements should be taken into account. Only the debtor is obliged to fulfil these requirements vis-à-vis the Deutsche Bundesbank.", ECBS, (02.2000), *Financial sector cross-border automated direct debits, TR205, Version 2*, pp. 24.

⁶⁷ New creditors must be sponsored by the Irish Direct Debiting Scheme and the creditor has to complete a standard form of Indemnity.

⁶⁸ RID.

⁶⁹ Autogiro.

⁷⁰ Every new creditor has to be sponsored by a bank and he has to obtain a unique identification number.

5. Electronic means of payment

Most of the payment systems in the wholesale sector are already based on electronic technologies. This means that the processing phase of the order is dealt with electronically⁷¹, even if this is not the case for the retail sector. Contrary to traditional payment systems, where funds are transferred from one account to another account of the same or of a different institution of the same or of a different country, electronic money is a stored value or a pre-paid product. It includes pre-paid cards (electronic purses) and pre-paid software products as digital cash.

So-called “smart cards⁷²” (electronic purses) are an example of cards incorporating a microprocessor to finalise a wide range of operations starting from payments. They provide security by separating the authentication from the payment stage. They can be “charged” with money in the same way as phone cards; and are generally used for transactions of small amounts since operational costs have to be kept low.

As cash, electronic money has the advantage that it can be used anonymously at the time of the transaction since there are no links to the owner’s bank account. Some of the main difficulties – and action points – for this payment system are common to those regarding credit transfers. Considerations may include especially:

- Timing of the payment performance;
- The cost of the process;
- The communication costs;
- The lack of a contractual and legal framework, especially relating to VAT regimes; the non-recognition of electronic contracts; or the regulations on digital signatures;
- The perception of the risks associated with these payment systems;
- The trade-off between the conventional payment systems and the electronic ones;
- The restricted access to electronic payment mechanisms for small enterprises due to the infrastructure costs.
- The security levels ensured by the system. This feature is gaining more and more importance in the long run and calls for a prudential legal approach.

The most probable solutions are, on the one hand, to harmonise the different national-specific procedures of electronic payment; and, on the other, to enhance the interoperability between the different systems, beginning with the creation of common international standards. The avoidance of a specific charge for cross-border credit card use, as already adopted by some institutions, would be an important step forward.

In December 1997 MasterCard International and Visa International, in co-operation with others in the industry, developed a “*single technical specification for safeguarding payment*”

⁷¹ IPTS, “Study on electronic payment systems for the Committee on Economic and Monetary Policy affairs and Industrial Policy of the European Parliament”, Joint Research Centre European Commission, Technical Report Series, May 1999.

⁷² In some countries, for example Belgium, these cards have been already introduced, in other countries such as Italy, they are in a “test” period and will be introduced probably from 2001. During the transition period, some of the cards have been provided with a chip for small payments and represent therefore a hybrid system. Telecom and Oberthur Card Systems also permit the use of mobile phone to finalise transactions such as payments and to ask for information concerning the account statement.

card purchases made over open networks... called the SET Secure Electronic Transaction™ specification...it includes digital certificates – a way of verifying that it is the actual cardholder making the purchase – ...the SET's strength lies in the fact that, unlike the encryption technologies, it provides both encryption and authentication⁷³...⁷⁴.The authentication refers to the integrity of the data, their confidentiality and anonymity. The security of the system itself depends on the trade-off between the level of cryptography used and the cost of developing it, but this represents a solution only for the problem of confidentiality and not of authentication.

Developed by VISA, CEPS (Common Electronic Purse Specification) is a second example of the standardisation efforts carried out recently, accepted and adopted. This system "defines the requirements needed by an organisation to implement a globally interoperable electronic purse programme... defines the card application, the card-to-terminal interface, the terminal application for the point of sale ..., data elements and recommended message formats for transaction processing. It... uses public key cryptography for enhanced security"⁷⁵.

Apart from the standardisation efforts made, creating interoperability between the different systems is even more important. Harmonisation always involves a limited number of members and can therefore not provide the unique solution. But interoperability can include all potential participants.

Compared to other payment methods such as credit and debit cards, the fixed costs of electronic money are relative high. This implies that issuers of e-money should have some basic characteristics, such as

- Financial soundness;
- Be subject to prudential supervision; and
- Provide guarantees and protection (e.g. insurance) for the customer.

As far as the second point is concerned, it is often considered that a limited prudential approach would be sufficient. The first point is more controversial: there is sharp disagreement about which entities should be issuers of electronic money. The debate focuses on the division between bank (credit institutions) and non-bank institutions. The basic considerations related to electronic money depend on the regulation of the liquidity risk⁷⁶ and the application of additional requirements for non-bank institutions. On the other hand, there exist restrictions on the expansion of business to closely related activities, and an obligation on the issuers to redeem electronic money in central bank money on request of the owner. This ensures that *e-money will remain at par with the official currency*⁷⁷.

⁷³ Authentication refers to the card and not to the holder of the card.

⁷⁴ IPTS, "Study on electronic payment systems for the Committee on Economic and Monetary Policy Affairs and Industrial Policy of the European Parliament", Joint Research Centre European Commission, Technical Report Series, May 1999.

⁷⁵ IPTS, "Study on electronic payment systems for the Committee on Economic and Monetary Policy Affairs and Industrial Policy of the European Parliament", Joint Research Centre European Commission, Technical Report Series, May 1999.

⁷⁶ The risk that arises from the difficulty of converting a value or an asset into liquid money

⁷⁷ IPTS, "Study on electronic payment systems for the Committee on Economic and Monetary Policy Affairs and Industrial Policy of the European Parliament", Joint Research Centre European Commission, Technical Report Series, May 1999.

Table 7: Overview of traditional and electronic payment instrument

| Amount of the payment | Traditional instrument | Electronic instrument |
|-----------------------|---|---|
| Micro-payment | Cash and coins | e-money stored in cards |
| Retail payments | Manually handled cheques and credit/debit card payments | e-money and network money |
| Payments | Credit transfers in paper form | Electronic transfers and internet banking |

Source: ECB, "The effects of technology on the EU banking system", July 1999

A crucial question in this field is whether or not electronic money will be limited to small amounts. The current legislation does not limit the amount; but many organisations are pressing for an upper threshold. Such a limitation would depend on the degree of security and integrity of the payment system on one hand; and the cost of using correspondent banking for cross-border transactions on the other.

6. Cash transactions

Charges on the conversion from national currencies into Euro, and vice versa have been strongly criticised by customers. Until the introduction of the single currency the charges were hidden by the spread between the buying and selling rates published by the banks themselves. Financial institutions are now obliged to quote at the fixed conversion rates between member currencies; and this implies that the charges have to be identified separately and in a transparent way. Although the amount of the charges should have been falling due to the disappearance of the exchange risk, the public perception is of an *increase*, especially for small amounts. Clearly, a fixed charge is proportionately higher on small amounts than on larger ones.

This problem should disappear with the circulation of €-denominated notes and coins at the beginning of 2002. Transfers of cash will then constitute a practically zero-cost means of transferring money across borders, though involving certain inconveniences and security risks.

7. Credit/debit cards

The **credit card** system itself (MasterCard, VISA, etc.) has developed internationally uniform standards and has been structured over the complete payment cycle, so that it can function through a recognised identification system in every country without adaptation procedures⁷⁸. The limited number of institutions involved in the payment process permits the adoption of centralised network solutions and more automated systems so that these systems are usually more developed and less problematic than credit transfers or cheque processing.

Cardholder, merchant, acquirer and the banking system are the four parties involved in an international credit card system such as MasterCard or VISA, which act as clearing centres. The process can be divided into two stages:

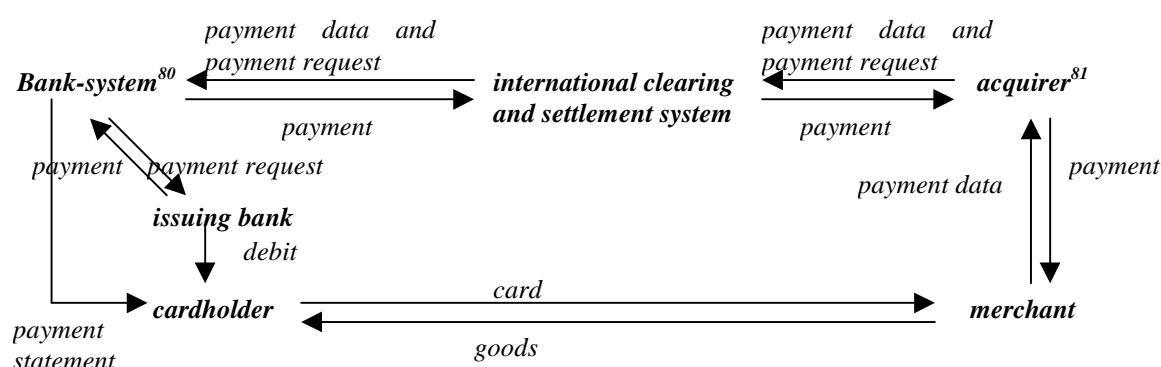
- the *authorisation phase*, which is requested from the merchant to the banking system through the acquirer; and

⁷⁸ Credit cards are used for different payment amounts across the Member States. For example in France and in Great Britain the average amount paid is €24, while in Italy the amount is higher and approximately €77.

- the *clearing and settlement stage*. During the latter the payment request arrives from the acquirer and is sent from the banking system to the issuing bank, which provides the debiting of the amount on the cardholder account. The banking system then provides the payment statement directly to the cardholder⁷⁹. The latter itself bears no costs and the merchant pays to the acquirer a commission ranging from 2% to 5% depending on the country.

The total charges for the use of credit cards are split between

- an *interchange fee*, which is paid by the acquirer to the issuer;
- the *clearing and settlement fee*, paid by the issuer and the acquirer to the international system (Europay International, MasterCard International); and
- a *transaction fee*, paid by the issuing bank to the banking system.



At purchase, the signature of the customer gives automatic authorisation to whoever presents the “receipt” to proceed with accreditation of the amount concerned. In contrast to credit transfers, no payment statistics are required officially by the controlling institutions for the credit card, and this saves time and reduces costs. Furthermore the commission for the credit card service is paid by the merchants and not by the customers, as in the case of credit transfers. The purchases made are charged on a monthly basis.

The **debt card** system operates like the credit card one, with the difference that debit cards authorise merchants to debit electronically the amount of the transaction on the bank account of the customer. The funds, in contrast with the credit card system, are transferred almost immediately from the customer’s account to the merchant’s account. The cardholder pays a fee⁸² and the merchant a commission, depending on the acquirer. The debit card volume is expected to grow over the coming years – already this year it accounts for approximately 60% of the total of Visa cards and 70% of the total expenditure done.

For the International Eurocheque payment system the parties involved are the Eurocheque holder, the merchant, the bank of the merchant (accepting bank), the issuer and Europay

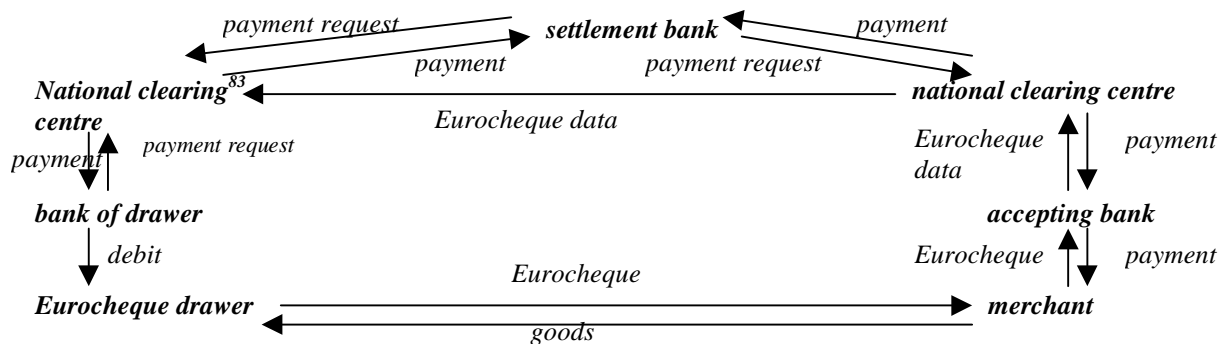
⁷⁹ KBC slides.

⁸⁰ Source: KBC slides.

⁸¹ The acquirer provides the authorisation.

⁸² For example in KBC the cardholder pays of €0.5 (incl. TVA).

International. The settlement process is a little more complicated than the one performed for the international credit/debit card system.



The total costs can be split between:

- an *interchange fee*;
- a *clearing and settlement fee* paid by the clearing centre to the card scheme; and
- the *processing costs* paid by the bank of drawer of the Eurocheque to the national clearing centre⁸⁴.

8. Fraud

The use of payment cards gives rise to a substantial amount of fraud, and is far more common in cross-border card transactions than in the case of national payments. The preventive action outlined by the Commission includes training programmes for bank staff, police officers and retailers and the provision of educational material.

Furthermore in 1998 the Commission proposed a “*Framework for Action on Combating Fraud and Counterfeiting on Non-cash Means of Payment*”⁸⁵ to ensure the harmonisation of criminal laws in the Member States. This had the aim of ensuring the recognition as crime of fraud involving all forms of non-cash payment, and an adequate and proportionate sanction mechanism acting at national level. Member States will be therefore required to classify the behaviour described in the framework as criminal offences; however, they retain some discretion to determine the nature and the severity of the sanctions, which could range from fines to deprivation of liberty.

The Member State itself should determine its jurisdiction between

- the “**territorial principle**”, which implies that, irrespective of the nationality, the person involved is prosecuted because the offence was committed partly or totally on a particular national territory, and

⁸³ Source: KBC slides.

⁸⁴ The drawer of the Eurocheque pays 1.6% of the transaction to the foreign bank and €1.24 plus 0.50% to the national service providers.

⁸⁵ Proposal for a Council Framework Decision on combating fraud and counterfeiting of non-cash means of payment, COM(1999)438 final, Brussels, 14.09.1999.

- the “**personality principle**” applied when the offender is a national. The adopted *EU Convention on Simplified Extradition Procedures* provides a blueprint for the application of simplified extradition procedures. Member States which do not extradite nationals are requested to submit the case to the national legal authorities for prosecution; and the cooperation between Member States is based on the provision of advisory and of relevant information either on request or on their own initiative.

CHAPTER II: FIELD SURVEY

1. Case studies

The statistics and the information presented below have been provided by different financial institutions from different countries in the EU. The results illustrate the different possibilities for dealing with cross-border credit transfers on a daily basis, including the need to process them in accordance with the various national requirements.

The examples may be used as benchmark descriptions of the banking processing systems, though some of the charges and statistics reported in the survey are based on estimates. The costs of cross-border credit transfers and cheques differ from institution to institution within the same country; and focusing on the internal costs of the banks is not sufficient. Through bilateral agreements, different institutions determine the totality of costs that should be charged for a transfer taking into account both their internal transmission and receipt costs and those of the partner bank. Since, however, it is impossible to know the costs of each possible correspondent bank in each country in the EU, it has been assumed for the sake of simplicity that the correspondent bank bears the same charges as the transmission bank. In practice, for inter-bank transfers, the total charges and their allocation may be different - a credit transfer from bank **a** in country **A** to bank **b** in country **B** may cost more or less with respect to a transfer of the same amount from bank **b** in country **B** to bank **a** in country **A**. However, the simplifying assumption does not significantly alter the conclusions.

1.1. The Italian example⁸⁶

The final provisions of the Directive on cross-border credit transfers specified that all “Member States shall bring into force the laws, regulations and administrative provisions to comply with this Directive by 14 August 1999 at the latest”. Italy has not yet adopted the legislation. Some of the Italian financial institutions are already adopting some of the obligations contained in the Directive, but most are not yet.

The payment systems and carriers outlined below are mostly used by Italian branches and headquarters of the benchmark bank⁸⁷; but the information may be considered more generally representative of the national reality.

- **S.W.I.F.T.**
- **EBA**
- **RNI**⁸⁸,
- **TARGET**. Due to the fact that Target is costly and involves too many participants, it will be used only at the request of the customer. A stylised scheme on how Target performs through the national network is presented in Annex 1.
- **Telex**. This was widely used in the past, but has now been almost totally superseded except for some transactions with developing countries.

⁸⁶ The statistics have been kindly provided by *Banca Popolare di Milano – BPM*- Via G. Fara 41, 20124 Milano. Contact person: Dott. A. Calaresi, B.A. Finanza. Direzione Servizi information technology.

⁸⁷ The information provided in the following paragraphs relates to the mechanisms and procedures used in the Italian branch of BPM in Milan.

⁸⁸ **Rete Nazionale Interbancaria**.

- **Cheques**⁸⁹. Transacting cross-border payments through the transfer of cheques is quite common in Italy. The customer requests the bank to issue a cheque drawn on a foreign bank for a beneficiary who is not in the same country of the originator. The customer can then either send the issued cheque directly to the destination person, or give the bank the order to send it to the beneficiary's bank. The second possibility relies on the bank to send electronically a message to the destination bank to issue a cheque for the beneficiary. The choice between the two methods depends mainly on the costs of each potential method in the different destination countries.

S.W.I.F.T. is the most common carrier used to transact payment orders, followed by the EBA system⁹⁰, which operates finally through the S.W.I.F.T. network and is therefore based on correspondent banking. These systems – EBA and S.W.I.F.T. – together process 80% of the total of cross-border credit payment orders of the financial institution considered, while the other 20% is divided between the other systems including Target which operates on the Italian territory through the national network – RNI⁹¹.

The processing of a payment order may be easily divided into the different steps which have to be completed by the customer and by the banks to finalise an order through S.W.I.F.T.. The process can be divided in two macro-phases;

- *the transmission of the order* including the collection of the information from the customer, handling of the message, the processing and the error handling; and
- *the receipt of the message* involving the validation and the accreditation process.

The transmission of the order

Stage A. The customer goes to the bank and orders a credit transfer filling in a preformatted form or he sends the order through a fax/letter/remote access to the bank. The information requested by the financial institution in order to be able to transact the payment request is:

- name and address of the destination bank and possibly the number of the branch;
- name, address and account number of the beneficiary and the destination customer;
- bank co-ordinate (BLZ for Germany, AT for Austria, ...)
- amount of the transfer and charging option
- the degree of urgency (possibly)
- reason for the transfer (optional for low amount, obligatory above a certain threshold).
The whole transaction is under the control of a national institute – Ufficio Italiano Cambi – to which the financial institutions have to report the statistics of the payment. Payments as input or output, which account for more than €10 329.14 (20 000 000Lit) have to be reported.

⁸⁹ Cheques are used in different measures in member states and volumes are falling. The use of this means of payment may be reduced in future particularly because its use is costly and time demanding. The circulation of cheques depends strongly on trust because the payment is finalised only when the funds are actually paid by the drawer's bank to the beneficiary and this is possible only when funds are available. The direct effect is that cheques are rarely accepted from unknown persons because they are easily counterfeited and lost. The difference between national and cross-border use of cheques is more marked than for the other instruments.

⁹⁰ EBA has in Italy only a limited diffusion between the banks. In fact it involves six financial institutions in the whole country.

⁹¹ The national network uses the physical channels of SIA with the protocol 25 and operates to transact national as cross-border payment orders.

The **problems of stage A**, which is the most costly stage and accounts approximately for 50% of the total costs for the transfer, include:

- *different information is required from different banks in the European Union due to different procedures requirements;*
- *often the bank does not have all the necessary information to initiate the procedure;*
- *collecting missing data is time-consuming;*
- *manual intervention is required.*

Among the **proposed solutions** are:

- *increased use of internet banking (input of the order through remote access)*
- *harmonisation of formalities among banks and countries*
- *an integrated carrier system with common interfaces for all financial institutions to transact cross-border transfers*

Stage B. The operator must control the identity of the customer through verification of the signature, and must also verify whether he has the necessary funds at his disposal to cover the amount of the transfer requested.

Two **problems of stage B** are:

- *the requirements are time consuming; and*
- *manual intervention is necessary.*

The **proposed solutions** include:

- *introduction of an electronic signature procedure to control the identity of the customer;*
- *automatic electronic validation of the signature*
- *electronic verification, through the account number, of the availability of funds*

Stage C. If the bank branch is small and does not have the capacity to transact cross-border orders, it sends a fax to a corresponding big bank branch to advise the credit. In addition, the small branch sends the original documents by mail to process the order because without the original documents the transaction cannot be initiated. If the branch can transact the operation itself, the second stage is avoided, but for the benchmark institution considered only 200 branches out of 400 in Italy are equipped to finalise these operations.

The **problems of stage C**, as in the case of Stage B, are:

- *the stage is time-consuming; and*
- *manual intervention is needed.*

The **proposed solutions** include:

- *avoiding advice of the transaction through fax; and*
- *the message order to include, automatically, the advice function*

Stage D. The information provided is entered into the computer using a procedure developed by the bank itself called “*procedura estero*”. This software has been developed by “R.A. computer” in 1986 on the request of 7 associated banking institutions and will be renewed.

The program includes procedures to transact every type of payment order from the national to the cross-border. The goal is to standardise the software so as to use preformatted formulations in input and output⁹². An advantage of this software is to avoid exchange rate speculations⁹³ due to the fact that the program uses the right exchange conversion rate verified at the moment at which the transaction order has been initialised.

The main **problem of stage D** is that:

- *different software has been developed internally by each bank which leads to incompatibilities between different systems.*

The **proposed solution** is:

- *to develop an integrated software system with common interfaces for all financial institutions to transact cross-border transfers (as for stage A)*

Stage E. The person in charge prints a copy of the transaction form for the customer, and a copy called “giornale di fondo” with the summary of the operations for the bank. This is used afterwards to check the accordance of the operation requirements with the credit transfer form.

The **problem of stage E** is:

- *this part of the procedure is paper-based and therefore costly in terms of time and space.*

The **proposed solutions** are:

- *to insert a message validation procedure through remote access for the customer;*
- *electronic message storage for the bank archives.*

Stage F. The transaction automatically generates a message type MT100⁹⁴ for the payment order and a message type MT202⁹⁵ for collateral security.

Stage G. The transaction remains unprocessed until the end of the day when the central software of the bank converts automatically, for all branches, the payment orders from the “procedura estero” to the procedure Merva (developed by IBM).

Stage H. The following day two different persons take charge of the operation and provide the verification and the authorisation of the transaction. Formal controls are done automatically through auto-diagnostic procedures. Those operating Merva have a personnel identification and access codes to the programme, which are changed monthly.

The **problems of stage H** are once more that:

- *the phase is time-consuming;*

⁹² The main idea is not to create a processing system for all payments but to standardise the software for each type of payment.

⁹³ The exchange rate speculation risk applies only for payments with non-European countries.

⁹⁴ The message MT100 orders the destination institution to credit the beneficiary and provides the information from whom to expect the funds.

⁹⁵ The message MT202 gives the instruction to the correspondent to debit the customer account in favour of the beneficiary's institution. It is used when no account relationship is present with the destination institution.

- *manual intervention is necessary.*

The **proposed solutions** are:

- *limitation to one person for the authorisation and the transaction stage;*
- *an increase in the auto-diagnostic capabilities of the internal software*

Stage I. When the transaction has been authorised, the message order arrives at S.W.I.F.T. (Brussels) which controls and confirms the correct arrival with a message “AK”, otherwise a message type “NAK” is sent back to the bank with the indication of the type of error. The transmitter has to correct the order⁹⁶ and if the customer is at fault he has to pay the cost for the S.W.I.F.T. message (€5.16 =10,000Lit) again.

The receipt of the message

Stage J. From S.W.I.F.T. a message type Merva is received and is converted into "procedure estero". The operator of the bank finds the accreditation order as input on the day following the initiation of the transaction. He provides for accreditation on the customer's account if the beneficiary has an account with the bank, otherwise he sends the accreditation order to the destination bank through the national network – RNI. If the S.W.I.F.T. message does not indicate the foreign reimbursement bank, the Italian branch has to intervene to correct the missing information. In fact there is a risk that the Italian bank pays the requested amount to the beneficiary, but the originator bank does not fulfil its obligations. The payment is therefore finalised at the value date⁹⁷ expressed in the message order or when the amount has been already transferred to the intermediary bank.

The **problems in Stage J** (the reception) are as for stage A.

The **proposed solutions** are as for stage A, plus

- *extending the S.W.I.F.T. network in order to achieve a national coverage replacing the national network (RNI)⁹⁸*

The standard procedure is outlined, for clarification, in diagram 2. It should be observed that in this chain four operators are involved in the transaction:

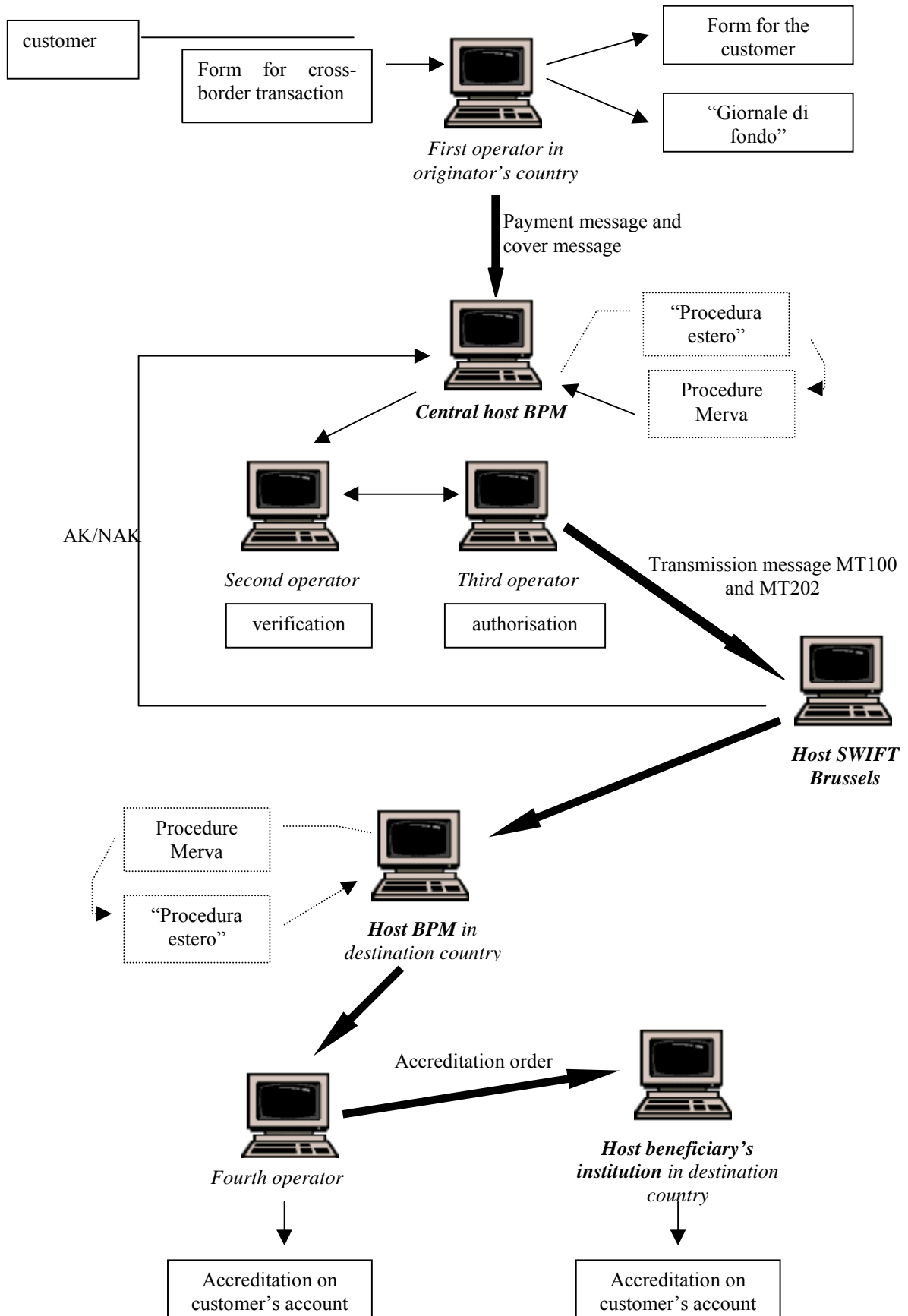
- the transmission phase
- verification of the message on the day after the initiation of the transaction for
- authentication of the order
- the receipt

⁹⁶ The operator has to contact by phone the person who has initiated the order.

⁹⁷ The value date is determined daily by FOREX, also taking into account official holidays on which the international financial markets close.

⁹⁸ BPM.

Diagram 2: Example of S.W.I.F.T. circuit (BPM)



Manual intervention is one of the most costly parts of the transaction and needs to be cut down. Automation of the process is therefore necessary, especially to reduce the number of operators involved to a maximum of one/two; one for transmission and possibly one for reception. The introduction of the IBAN code, for example, will permit transmission of the order to the beneficiary's bank directly, avoiding the intervention of the operator in receipt. In Italy, as in other countries, the IBAN code will be introduced by the end of 2000 in most institutions.

The timing needed from the initiation to the finalisation of the transfer ranges from a minimum of three working days to a maximum of six. The costs can be roughly split into 70-80% for the originator bank and 20-30% for the destination bank. The transaction work itself may be roughly divided into 80% work done in the transmission (first phase) and 20% work done in the receipt.

The information provided by the beneficiary's bank is not always fully explanatory: it may not match the information requested by the destination bank for the accreditation of the amount. This may be due to a failure in completing the transfer request form or to different account procedures in different countries. Some banks have a higher level of automation, due to the development of internal software; but this is normally limited only to small amounts.

Table 8: Charges for cross-border credit transfers:

| Costs in transmission | Fix (Lit) | variable |
|---|----------------------------------|----------|
| A1-Basic cost | €8.52 (16 500Lit) | |
| A2-service | | 2‰ |
| A3-Commission for payments in US\$ | €4.13 ⁹⁹ (8 000Lit) | |
| A4-Costs S.W.I.F.T. for each transmission | €5.16 (10 000Lit) | |
| A5-Communication to UIC ¹⁰⁰ | €5.68 ¹⁰¹ (11 000Lit) | |
| A6-Endorsement service ¹⁰² | €18.08/20.66 (35 000/40 000Lit) | |

Source: BPM

| Costs in receipt | Fix Lit (€) | variable |
|-------------------------|----------------------------------|----------|
| B1-Basic cost | €8.52 (16 500Lit) | |
| B2-Service | | 2‰ |
| B3-Communication to UIC | €5.68 ¹⁰³ (11 000Lit) | |
| B4-Endorsement service | €18.08/20.66 (35 000/40 000Lit) | |

Source: BPM

The costs presented in table 8 are the costs that are normally charged for credit transfers, but refer to the maximum commissions that may be charged. Banks have the right to reduce the costs through bilateral agreements with clients and enterprises.

⁹⁹ Only for transfers in \$ when an American bank is involved in the transaction chain, because correspondent banks can maintain reciprocally only accounts in national currency.

¹⁰⁰ Ufficio Italiano Cambi

¹⁰¹ This commission is required only for transfers of amounts exceeding €10 329.14 (20 000 000 Lit).

¹⁰² In case the originator bank is a small institution that has to pass through other banks to transact the payment this fee is requested to endorse the funds and to make them available to the other institution.

¹⁰³ This commission is required only for transfers of amounts exceeding €10 329.14 (20 000 000 Lit).

If the destination bank is a different institution from the originator bank, an extra fee of €18.08¹⁰⁴/€20.66¹⁰⁵ will be charged in the form of a reduction of the amount of the transfer by the intermediary institution to the destination bank. This means that this cost is finally charged on the beneficiary of the transaction. The commission is debited because of the currency conversion rate but *should have already been eliminated by 1/1/1999 with the adoption of the Euro as common currency*. Diagram 3 reports how the costs are split and charged between the institutions and customers taking part in the transaction:

Diagram 3: Transaction costs

Source: BPM

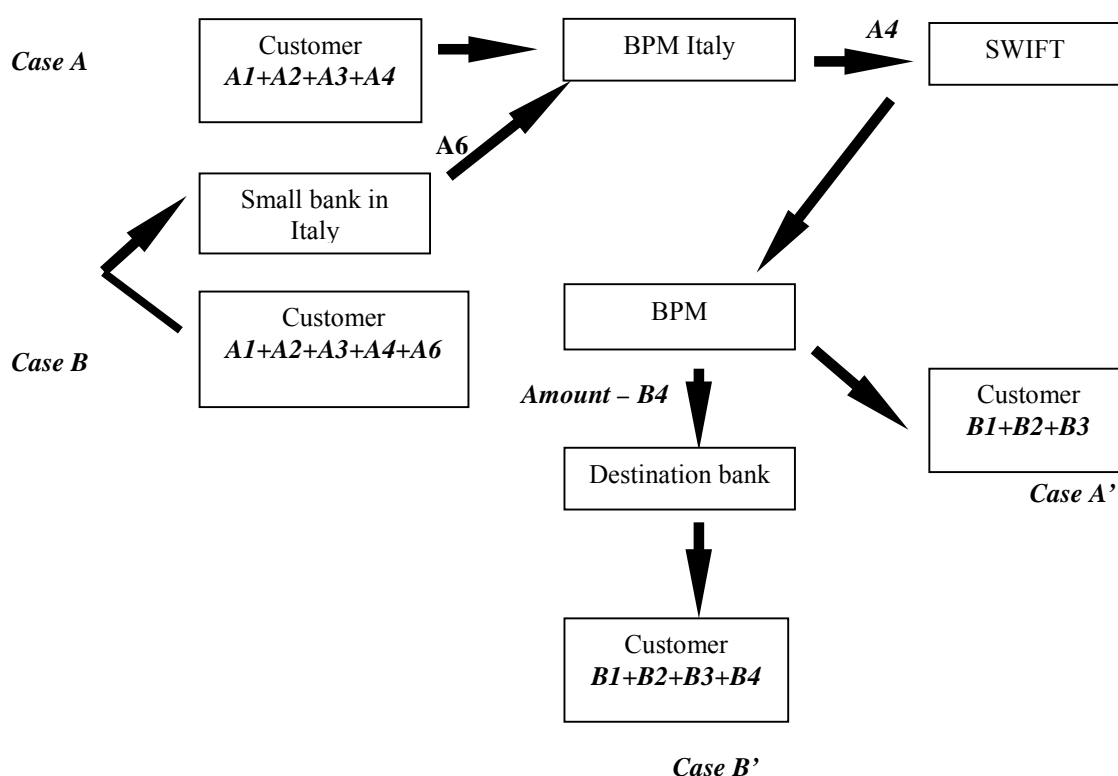


Table 9 shows the costs for potential amounts of credit transfers. It should be noted that, for limited amounts ranging from €10 to €20, the total costs charged exceed the amount of the transfer itself and are therefore economically non-feasible. For more consistent amounts, ranging from €30 to €80, the percentage impact of the total costs is very high (from 74.4% to 28.2%) and raises the question of the convenience of finalising retail cross-border transfers. The table is based on the assumption of an intra-bank transfer for which transmission and receipt costs are known and therefore make it possible to calculate the total costs charged for the transaction. In reality, the costs sustained by each possible correspondent bank are determined in advance when a bilateral agreement between the involved institutions is concluded, and varies from case to case. When no agreement has been concluded, the costs cannot be calculated in advance, but only after the finalisation of the transaction;

¹⁰⁴ €18.08 (35 000Lit) are charged for transacting transfers in national currency.

¹⁰⁵ €20.66 (40 000Lit) are charged for transacting transfers in foreign currency.

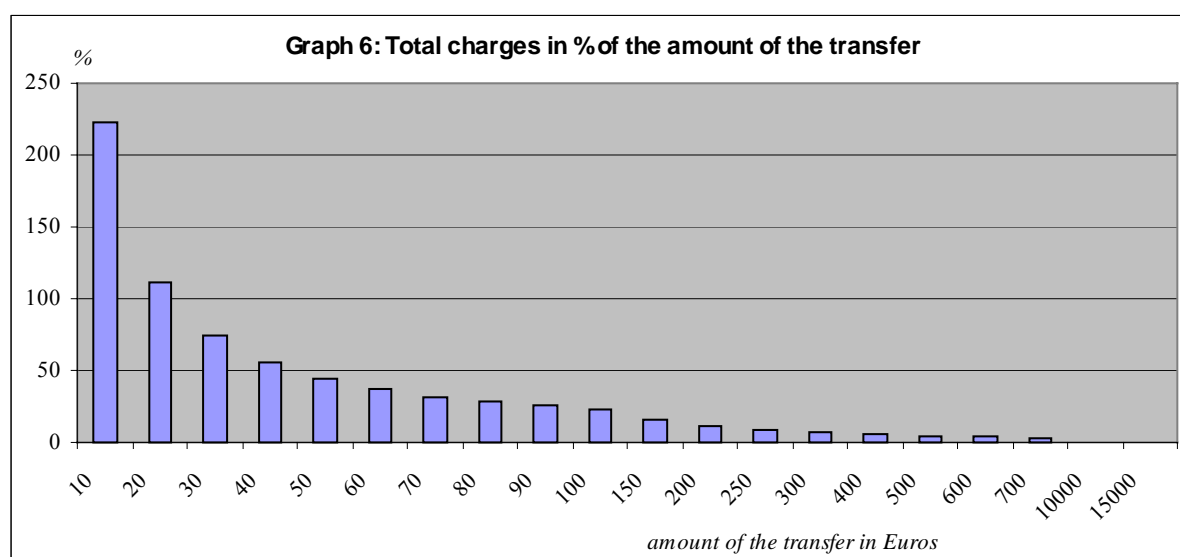
nevertheless the results are robust. Considering the receipt and transmission costs separately, it should be noted that the second are much more consistent than the first, because capturing the data is highly expensive for the bank. Approximately, up to €50, the transmission costs have a relative impact of more than 1/3 on the transfer amount.

Table 9: Charges for cross-border transfers¹⁰⁶

| Transfer amount in € | Total charges in € | Total charges in % of the amount | Transmission charges in € | Transmission charges in % of the amount | Charges in receipt in € | Charges in receipt in % of the amount |
|-----------------------------|---------------------------|---|----------------------------------|--|--------------------------------|--|
| 10 | 22.24 | 222.4 | 13.7 | 137.0 | 8.54 | 85.4 |
| 20 | 22.28 | 111.4 | 13.72 | 68.6 | 8.56 | 42.8 |
| 30 | 22.32 | 74.4 | 13.74 | 45.8 | 8.58 | 28.6 |
| 40 | 22.36 | 55.9 | 13.76 | 34.4 | 8.6 | 21.5 |
| 50 | 22.4 | 44.8 | 13.78 | 27.6 | 8.62 | 17.2 |
| 60 | 22.44 | 37.4 | 13.8 | 23.0 | 8.64 | 14.4 |
| 70 | 22.48 | 32.1 | 13.82 | 19.7 | 8.66 | 12.4 |
| 80 | 22.52 | 28.2 | 13.84 | 17.3 | 8.68 | 10.9 |
| 90 | 22.56 | 25.1 | 13.86 | 15.4 | 8.7 | 9.7 |
| 100 | 22.6 | 22.6 | 13.88 | 13.9 | 8.72 | 8.7 |
| 150 | 22.8 | 15.2 | 13.98 | 9.3 | 8.82 | 5.9 |
| 200 | 23 | 11.5 | 14.08 | 7.0 | 8.92 | 4.5 |
| 250 | 23.2 | 9.3 | 14.18 | 5.7 | 9.02 | 3.6 |
| 300 | 23.4 | 7.8 | 14.28 | 4.8 | 9.12 | 3.0 |
| 400 | 23.8 | 6.0 | 14.48 | 3.6 | 9.32 | 2.3 |
| 500 | 24.2 | 4.8 | 14.68 | 2.9 | 9.52 | 1.9 |
| 600 | 24.6 | 4.1 | 14.88 | 2.5 | 9.72 | 1.6 |
| 700 | 25 | 3.6 | 15.08 | 2.2 | 9.92 | 1.4 |
| 10000 | 62.2 | 0.6 | 33.68 | 0.3 | 28.52 | 0.3 |
| 15000 | 93.56 | 0.6 | 49.36 | 0.3 | 44.2 | 0.3 |

Source: BPM

Table 9 and Graphs 6 and 7 show the percentage impact of the total costs of the different potential amounts, and the division between transmission costs and receipt costs.



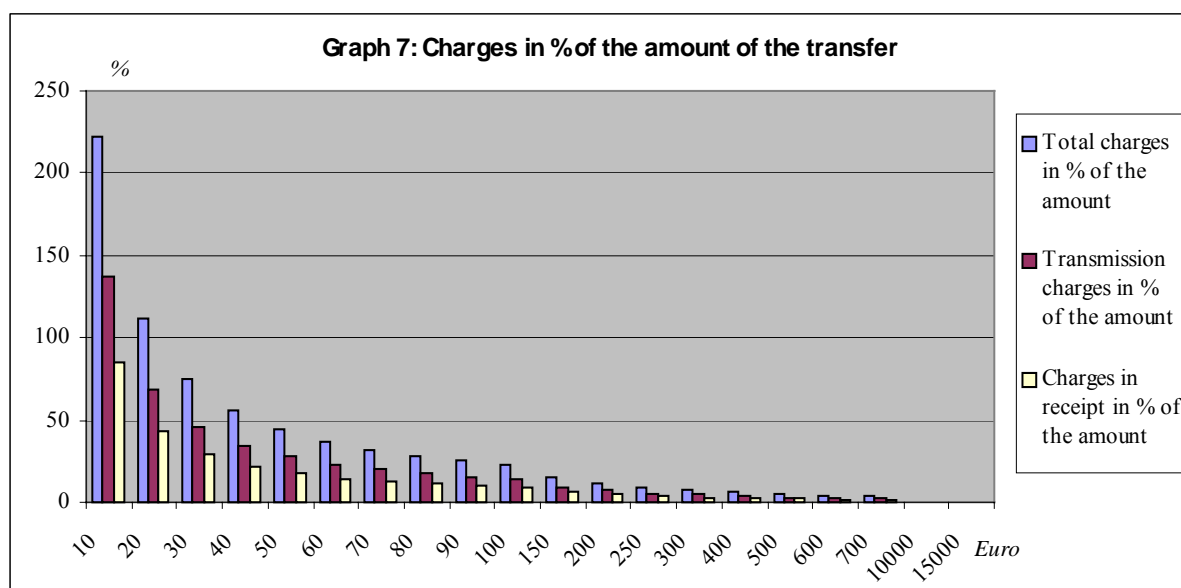
Source: BPM

¹⁰⁶ In the simplest case where two banks are involved (one in transmission and one in receipt).

The reduction of charges is therefore a critical objective. Graph 6 illustrates the reasons:

- Fixed costs constitute a large proportion of total costs. This is mainly due to the high degree of manual intervention necessary.
- As a result, costs as a proportion of the sum transferred rise in inverse proportion to the amount. For amounts below €50, more than 50% of the transfer can be deducted to cover these costs. For amounts below €25, costs actually exceed the amount transferred.
- This pattern is true of both transmission and receipt costs (see Graph 7), though marginally less in the case of the latter.

A further important factor is that all costs can sometimes be charged to the beneficiary of the transaction, contrary to EU legislation. In Italy, the customer has a choice between the “SHA” mode, the “OUR” mode and the “BEN” mode to finalise the transaction. In the *first case*, the costs are split into transmission and receipt costs. The formers are charged to the originator and the latter to the recipient. In the *second case*, all the costs are charged to the originator when the destination institution has notified the originator’s bank of the amount of its charges. In the *third case*, all the costs are charged to the recipient. Normally in Italy the “SHA” mode is chosen automatically when no agreement exists between the customer and the bank. With the introduction of the Cross-border Credit Transfers Directive (97/5/EC) the “OUR” mode should be implemented automatically.



Source: BPM

Cheques

The use of cheques represents an alternative method for processing payments (for details see Annex 3). The process structure is considerably simpler than that for cross-border transfers due to the different nature of the two systems.

In transmission:

Stage A. The information needed to transact the payment, as for a direct transfer, consists of:

- name and address of the originator and the beneficiary;

- name and address of the destination bank and possibly the number of the branch;
- account number and bank co-ordinate (BLZ for Germany, AT for Austria, ...);
- reason for the payment (possibly)

Stage B. In compiling the cheque the time needed is greater compared to credit transfers, and standardisation of the procedure can be achieved only for payments over €5,164.57 (10,000,000Lit) for which an advice message is sent to the destination bank through the S.W.I.F.T. network.

The *problems of stage B* are:

- *it is time-consuming;*
- *manual intervention is needed;*
- *there is limited capability to process a high volume of payment orders.*

The *proposed solution* is to

- *confine the use of cheques to payments of high amounts*

Stage C. The cheque can be sent personally by the customer to the destination bank or the customer asks the bank to send it.

The *problem of stage C* is:

- *a risk that the cheque will be lost or falsified*

Proposed solutions are:

- *customers themselves should not send the cheques*
- *increase the security of transfer procedures (in Italy cheques are cut at the upper right corner to preserve them from falsification)*

Table 10 highlights the costs charged for the use of cheques, dividing them into *basic costs* for the handling of the cheque; and a *service fee* for the conversion of the national currency into the € (which should now no longer exist).

Table 10: Charges for cross-border use of cheques:

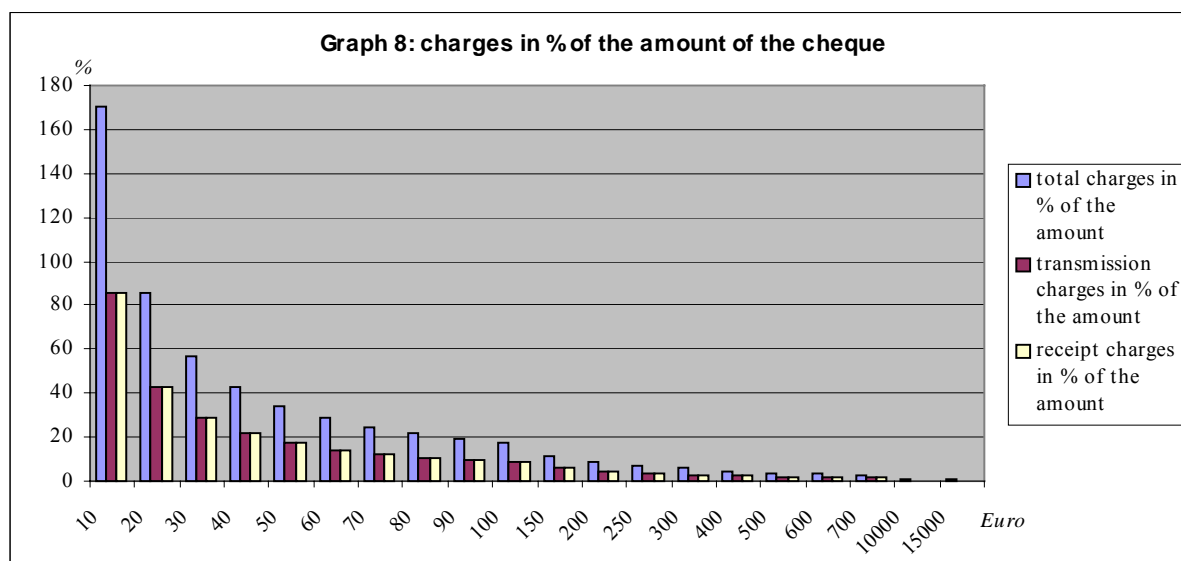
| Costs in transmission | Fix € (Lit) | variable |
|---------------------------------------|--|----------|
| A1-Basic cost | €8.52 (16 500Lit) | |
| A2-Service | | 2‰ |
| A3-Possible cost for money conversion | For the \$: 7.5 points more of the official conversion rate towards the \$ | |

Source: BPM

| Costs in receipt | Fix Lit (€) | variable |
|------------------|-------------------|----------|
| B1-Basic cost | €8.52 (16 500Lit) | |
| B2-Service | | 2‰ |

Source: BPM

Graph 8 shows how the costs charged for cheques are split equally between the transmission and receipt costs.



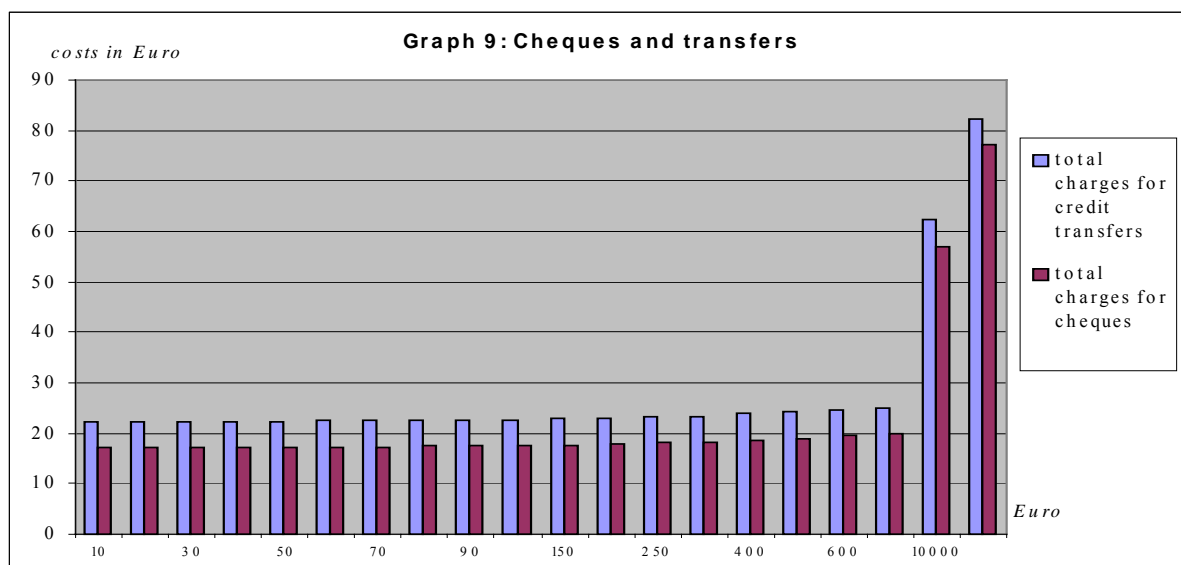
Source: BPM

For amounts below €10 the transaction is clearly not economic, because the costs are more than the payment amount itself. Above approximately €40 – the threshold at which costs fall below 50% of the amount – the transaction possibly becomes economic. This threshold is lower than that for credit transfers via S.W.I.F.T. Costs for the use of cheques are in fact less than costs charged through S.W.I.F.T. for all credit transfers (see graph 9) - in fact credit transfers are approximately 23% more expensive than cheques, even if this gap falls to only 6/8% with the increase of the payment amount.

Cheques, on the other hand, have disadvantages. They are inconvenient for transacting a large number of orders because, for each payment, a separate cheque has to be issued. Furthermore, the procedure suffers from low security levels, because cheques can easily be counterfeited or lost. The dangers are especially great when the payment title is sent cross-border from one institution to another (see statistics below).

Statistics:

- *Lost transfers* none
- *Lost cheques* 1% of the total transactions
- *Late accreditation of transfers* 1% of the total transactions
- *Reimbursement* payment of interest from the value date in case of late accreditation of the transfer



Source: BPM

1.2. The Belgian example¹⁰⁷

Belgium should be considered a country in transition, since the Directive on Cross-border transfers¹⁰⁸ has only recently been transposed into the national legislation (March 2000). This implies that changes, especially on the side of the charges, had yet to be effected at the time of this survey.

Before the entry in force of the Directive it was the practice in Belgium, as in Italy and in other countries, to assume that each bank should bear its own transmission or receipt costs. This meant that the transmission costs were charged to the originating customer and the receipt costs to the beneficiary customer ("SHA" mode). The "OUR" or "BEN" modes might be adopted under agreement with the customer.

With the introduction of the Directive, the "OUR" mode has now to be adopted as standard. A significant problem, however, is that most of the modules and formalities used by banks to transact cross-border payments have not yet been changed to handle the new mode.

One of the central issues is the difference in the method of processing payment instructions. For internal reasons some banks use two different systems depending on whether they are processing domestic or international payments. For the customer, however, the relevant distinction is between Euro or non-Euro payments. This explains why domestic processing systems are unable, or unhelpful, to perform international payments. Both the standardised procedures and the forms that have to be filled are simpler for national payments than for international ones.

Operationally, domestic and cross-border payment instructions are processed in a different way, and operate through different networks/software. Domestic orders go through the software TeleKB-Privé that requires the use and the filling in of only one electronic screen.

¹⁰⁷ The statistics have been kindly provided by **KBC** Bank Head Office, Havenlaan 2, B-1080 Brussels. Contact persons: Mr. W. Beaten and Mr. G. De Smet.

¹⁰⁸ Which entered in force on August 14, 1999.

International orders go as input in ISABEL and need more screens (8) to be completed because of the higher complexity.

The degree of complexity is increased when a branch is involved. A specialist section of the bank's head office may have to "repair" the order, inserting missing data before forwarding it for clearing. The clearing centre itself may also have to "repair" the message - for example, if the order indicates a financial institution which is not suitable for executing the payment, and which therefore has to be changed. In both cases an automatic internal account number control, however, avoids manual intervention.

For Euro payments, sometimes wrongly assimilated to international payments, some of the software in use requires an indication in which currency - national currency or Euro- the payment should be performed. This separation is clearly redundant since, with the introduction of the Single Currency, the former national currencies are already subdivisions of the Euro itself.

For transfers over €9 000 manual intervention is necessary because, above this threshold, it is necessary that either the originator or the destination institution ask the customer for the purpose of the operation. This means that the operation has to be reported *manually* to the National Central Banks – under balance of payments reporting requirements – for which the country code of the beneficiary and the transaction code are needed¹⁰⁹. Other countries in Europe have the same hurdle of reporting requirements, e.g. France, the Netherlands, etc., while others do not, e.g. Finland and Ireland, because the statistical information is collected through sample-based surveys. For outgoing cross-border credit transfers the declaration system is based on written documents, while for incoming ones a similar reporting requirement is needed, although there is no obligation to provide a written document nor the customer's signature.

A direct effect of these differences is that it may be necessary, in the case of some payments – for example from Belgium to France – to report the same payment transaction *twice*, once to the French control institution and once to the Belgian control institution.

A further crucial point is that the Directive covers transfers up to €50 000, while the balance of payments requirements are not at the same level. This means that not all payment orders up to the defined threshold (€50 000) can be treated in the same way and makes it impossible to apply automatic straight-through processing of the message. This, in turn, has direct effects on the costs, because the reporting has to be concluded manually.

It can be concluded that any reporting threshold below €50 000 should be abolished. BoP¹¹⁰ reporting between Member States is in any case not necessary. Most, even if not all, statistical requirements can be calculated from other transaction statistics, for example from VAT statistics.

The main payment systems/carriers used by the benchmark bank considered are:

- S.W.I.F.T.;
- S.W.I.F.T. urgent;
- Telex; and

¹⁰⁹ For Belgium for example, the reporting is due to the **Belgian-Luxembourg Exchange Controle Institution – B.L.E.I.**

¹¹⁰ **Balance-of-payments.**

- Cheques

S.W.I.F.T. urgent is used at the request of the customer, especially when the customer desires to be informed of the arrival and processing of the orders with a feed-back message. This specifies the “AK” number related to the payment order. This urgent procedure ensures avoidance of queuing difficulties, since priority is given to the order by its execution in the destination institution within a shorter value date¹¹¹. The process attracts an additional cost of €3.7184 (150 BEF) with respect to the normal S.W.I.F.T. message.

A special transfer procedure called “compact transfer” up to €9 000 has been established using the “OUR” mode, when all the relevant information is provided¹¹²; but it cannot be used for urgent payments. Compact transfers cover approximately 70% of all retail transactions, cost only €6, plus 21% VAT, because they include automatic balance-of-payments reporting¹¹³.

For incoming payments the validation procedure requires the account numbers¹¹⁴ and the details of the payments; but difficulties arise when the maximum length of the transaction codes differ between countries and the digits of a code exceed the maximum number of characters handled by the system. In some countries the account number has to be combined with national clearing codes as follows:

| | | |
|---|--|-----------|
| e.g. Germany, Austria ¹¹⁵ etc. | <i>account number</i> | 10 digits |
| | “ <i>Bankleitzahl</i> ” ¹¹⁶ , | 8 digits |

identification of the beneficiary within his bank

Added to the national specific bank account number, a common check digit and a country code is added to the IBAN¹¹⁷ code, which is too long to be processed by the individual institutions. Therefore the first part – the IBAN check digit and the country code - is cut by the system, processed straight-through, and then added again.

Structure: **BE dd 421-6743453-67**

↓ ↓ *Bank account number*
 ↓ ↓ *IBAN check digit*
 ↓ ↓ *Country code (Belgium)*

¹¹¹ Normally the payment is executed within three working days when no or one intermediary is present and the value date is provided within 2 days. For urgent SWIFT, the value date is less than 2 days.

¹¹² Current account number of the beneficiary required.

¹¹³ Above this threshold the reporting cannot be done automatically because the reason for payment has to be asked of the customer and this does not allow the straight-through-processing of the message.

¹¹⁴ Foreign/national.

¹¹⁵ KBC slides.

¹¹⁶ Local German clearing code.

¹¹⁷ **I**nternational **B**ank **A**ccount **N**umber.

To identify the destination bank, a further code has to be entered, which has not been yet harmonised across the Member States and ranges from the “S.W.I.F.T. address” which every institution in the circuit has, to the “Bankleitzahl” for Germany, to the “CHAPS” sorting code for Great Britain etc..

Even if the level of settlement costs for cross-border transfers are consistent with domestic ones, as can be seen below,

SETTLEMENT COSTS

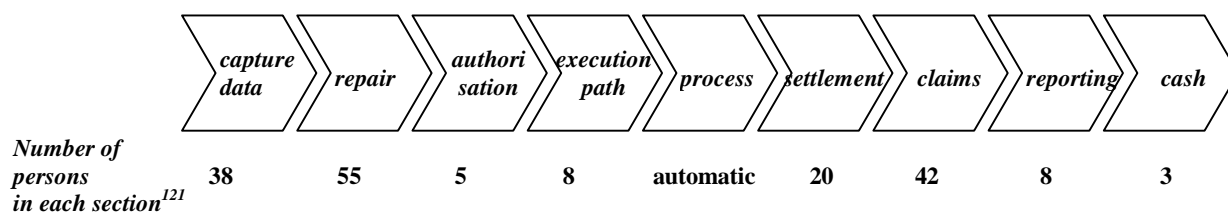
domestic clearing costs through local clearing €0.0037

cross-border clearing costs through European clearing systems

EBA €0.13¹¹⁸

Target €0.80¹¹⁹

these costs are only a tiny fraction of the total costs which are charged on cross-border transfers. At the root of the most substantial costs are the internal processing and correction procedures, which have to be performed by the institutions. Most of these activities are manual intensive, e.g. “repairing”. The following scheme¹²⁰ highlights the need to reduce these costs.



The statistics provided refer to the volumes performed by the benchmark institution itself; but the conclusions may be generalised. *Capturing the data* and *repairing the message* are the steps where more operators are necessary and relate to the transmission phase of the message. This means that the transmission costs differ from receipt cost.

The effect is that charges for a transfer from bank **a** in country **A** to bank **b** in country **B** may be different from the same payment from bank **b** in country **B** to bank **a** in country **A**.

| Domestic payments | | Cross-border payments | |
|--|----------------|-------------------------|----------------|
| -34% paper input | | -50% paper input | |
| -manually | =0% STP | -manually | =0% STP |
| -optical processing ¹²² | =10% STP | -50% electronic banking | =33% STP |
| -37% electronic banking | =99% STP | | |
| -20% direct debit ¹²³ | =100% STP | | |
| -9% standard operations ¹²⁴ | =100% STP | | |
| 100% | 67% STP | 100% | 17% STP |

¹¹⁸ The EBA clearing cost is 35 times higher than the domestic cost.

¹¹⁹ The Target clearing cost is 215 times higher than the domestic cost.

¹²⁰ KBC/AC slides.

¹²¹ The number of persons in each section are the total operators for each stage including the operators in the branches and at KBC headquarters.

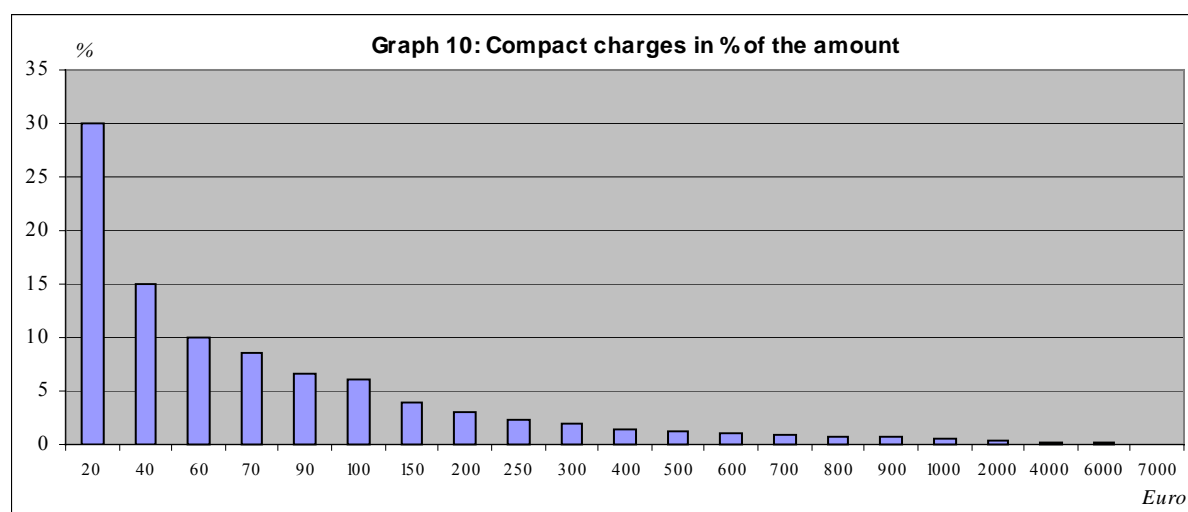
¹²² Optical reading of the order form but it has to be checked manually.

Costs are directly related to the degree of straight-through processing. Domestic payments have a higher percentage of STP, already 67%. By contrast, STP applies to a mere 17% of cross-border payments.

The difference between charges for domestic and cross-border payments can be inflated in other ways. Some institutions have a tarification policy based on a cross-subsidisation between payments and other services. As a result, customers pay only a fraction of the real costs of domestic payments; while they *do* pay the real cost for cross-border transactions.

The policy of “combined costing”, *has the effect that heavy users of payment services are subsidised by customers who make little use of the services*¹²⁵. Charges on the latter have dropped significantly since 1998; in fact, in the case of compact transfers, they have been reduced by 24% but for the rest by 41% to 64%. The recent pricing structure is the following:

| | | | |
|----------|--|--------|-----------|
| Compact: | | € 6 | + 21% VAT |
| Other: | - transaction fee ¹²⁶ | 0.1% | + 21% VAT |
| | - handling fee ¹²⁷ | € 2.97 | + 21% VAT |



Source: KBC

Graph 10 shows how compact transfers are convenient for customers even for very small amounts, such it as €10 or €20. The impact of charges is never above 30% of the amount transferred and it is therefore economically convenient to use this payment system. It is less convenient for the financial institutions because of the low profits.

¹²³ For example, for debiting of gas or telephone expenses.

¹²⁴ For example, for the monthly accreditation of the salary.

¹²⁵ Banking Federation of the European Union, “Payment systems in the Euro zone”, Brussels, 24 June 1999.

¹²⁶ Minimum of €3.72, maximum of €123.95.

¹²⁷ Only for paper-based transfers.

1.3. The Austrian example¹²⁸

Two systems are mainly used in Austria to transact payment orders¹²⁹: *correspondent banking* and *Low Value Payments*, both operating through the S.W.I.F.T. network. As for the previous countries, the process can be divided into single phases, which account for different proportions of total transaction costs.

In order to initiate the processing of orders through correspondent banking, a secret S.W.I.F.T. access key exchange is needed, and/or the maintenance of an account relationship with the correspondent financial institution involved in the transaction. The information required for the processing is the same as for the other countries (name, address, account number, currency amount and reason) as well as the IBAN or S.W.I.F.T. code. The sending of the message requires manual intervention when the payment orders are delivered in standard written form. If the order is delivered electronically manual intervention is limited. To enable the customers to send the bank the orders electronically, the institution has the following software in use:

- *Telebanking MBS*; which is a multi-banking software, highly standardised.
- *S.W.I.F.T.-MERVA*; which is the standard for many institution in many countries (Italy, etc.) to process S.W.I.F.T. messages through correspondent banks.

This stage is the most expensive and is estimated to account for approximately 50% of the total costs. The system in which all the payments are entered (*sending message phase*) is PAYSIC¹³⁰ the use of which is spread across the whole banking sector. The cost for this single phase is estimated at around 3% of the total and its influence on the amounts of the charges can be therefore considered relatively insignificant.

At the *error-handling phase* the corrections are dealt with manually, and the time involved varies significantly from case to case depending on what is missing and if the information can be recovered easily in order to “repair” or complete the order. Normally this stage is expensive, and ranges around 15% of the total cost because the customer rarely provides all the details required. In the case of large enterprises, however, investment in software to provide pre-scheduled information can make straight-through processing more likely.

When the accreditation order is received through MERVA and PAYSIC (*receiving stage*), the estimated costs are around 2% of the total. The validation of the message order will have been dealt with automatically, and will therefore have been neither time- nor cost demanding. The amount is then accredited to the beneficiary¹³¹, and even if manual intervention is needed the process is finalised within less than approximately 90 seconds. The estimated costs are around 10%.

In the case of the use of *Low Value Payments system* – LVP – the transaction of orders is highly standardised provided the payment does not exceed the threshold of €5 500. The basic prerequisites are the existence of an account with the destination institution and a “sorting

¹²⁸ Allgemeine Sparkasse O.Ö.Bank AG has kindly provided the statistics. Contact persons: Mr. R. Pils and colleagues, Zahlungsverkehr-Abwicklung.

¹²⁹ For EBA and Target the bank is a sub-participant.

¹³⁰ Payments System for International Currencies.

¹³¹ Also through MERVA and PAYSIC.

code” of this account, which is not required in all Member States¹³². The information that the customer has to provide is:

- Name, account number and address of the originator customer.
- Currency and amount of the transfer.
- Reason for the payment order¹³³.
- Beneficiary’s address and name.
- Beneficiary’s account number and sorting code.

The following stages (message sending, processing the order, error-handling, message receiving and validation of the payment order) are carried out, and incur costs, as in the stages performed by correspondent banking.

Table 11: Timing of processing cross-border transfers

| Operational phase | Correspondent banking | | LVP | |
|-------------------------------------|-----------------------|----------------|------------------------|----------------|
| | Time needed | Cost estimated | Time needed | Cost estimated |
| <i>Sending message</i> | 5 minutes | 50% | <3 minutes | 50% |
| <i>Processing the message</i> | <3 minute | 3% | <3 minute | 3% |
| <i>Error handling</i> | variable | 15% | variable | 15% |
| <i>Receiving the message</i> | <2 minutes | 2% | automatically received | 2% |
| <i>Validation of the payment</i> | no time needed | | no time needed | |
| <i>Accreditation of the payment</i> | <90 seconds | 10% | | 1% |

Source: Allgemeine Sparkasse O. Ö. Bank AG

In the accreditation of the payment, in contrast to the previous method, no manual intervention is required and different software, SPARDAT, is used to process the order. It results in relatively low costs, and requires less time for this operational phase. The LVP system has the advantage of being a cheap method both for the financial institution and, especially, for the customers. On the other hand, it is available only for low value payments up to €5 500. Bilateral agreements are necessary; and it performs less rapidly than correspondent banking. Though the latter needs many correspondent relationships to function adequately, it performs efficiently and quickly, assuming that the customer provides all necessary information.

Table 12: Structure of costs for cross-border transfers

| Total charges of the transfer | Correspondent banking | LVP |
|-------------------------------|-----------------------|-------|
| | 100% | 100% |
| <i>telephone</i> | 2% | 0% |
| <i>fax</i> | 2% | 0% |
| <i>infrastructure</i> | 30% | 20% |
| <i>Manual intervention</i> | 20% | 40% |
| <i>software</i> | 20% | 10% |
| <i>profit</i> | 0-20% | 0-20% |
| <i>other</i> | rest | rest |

Source: Allgemeine Sparkasse O. Ö. Bank AG

¹³² For example it is not required for Belgium or Netherlands.

¹³³ The reason for the payment is needed only for transactions above €5 500, with declaration to the National Central Bank. It is not required for lower payments, even though it may be asked for.

Concerning the charges for both payment systems, some differences can be observed, as set out in the following table. This outlines how the costs are split between the different operations needed to perform cross-border payments. The main costs of correspondent banking arise from infrastructures provisions, software and manual intervention, even if the latter element is more marked for the LVP system. While LVP incurs fixed costs in transmission and receipt, correspondent banking charges fixed costs in receipt and variable costs in transmission. The charges are the followings:

Correspondent banking:

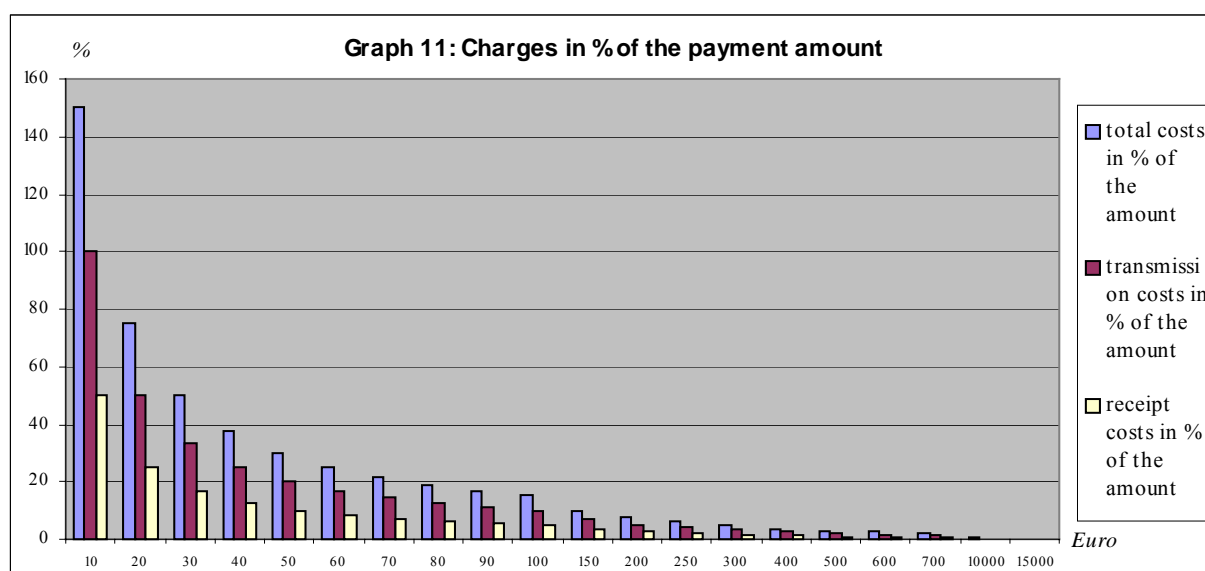
In transmission: 2.5‰ of the transaction amount, but the minimum charge is €10

In receipt: €5 (<€10 000)
 €10 (>€10 000)
 1‰ (>€100 000 with a maximum charge of €125)

LVP¹³⁴:

In transmission: €5

In receipt: €5



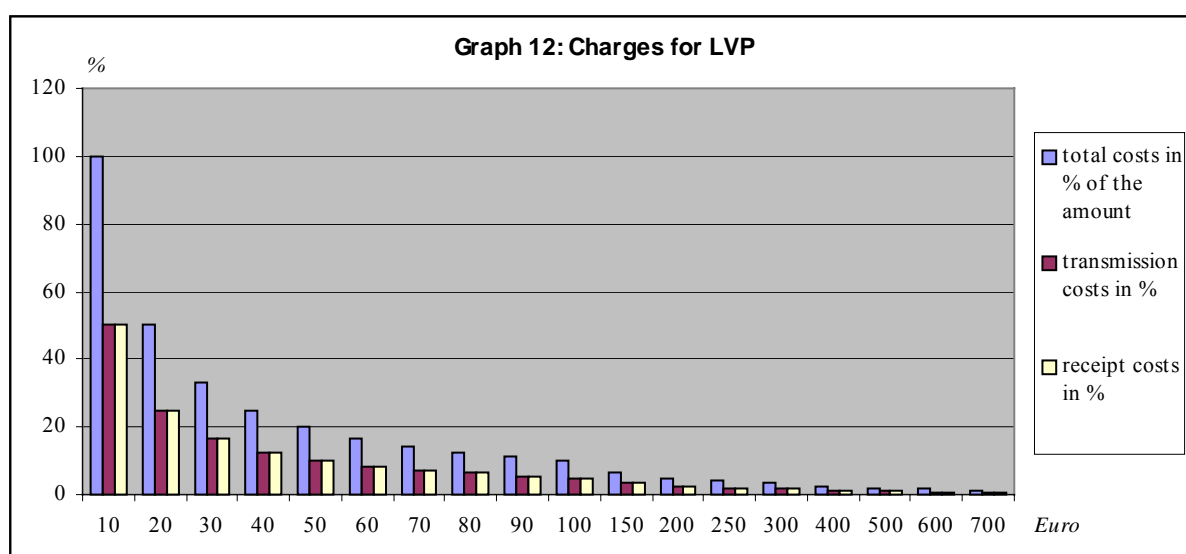
Source: Allgemeine Sparkasse O. Ö. Bank AG

Transmission costs are considerably more consistent than receipt costs for correspondent banking, in contrast to the LVP system, which makes the same charges for outgoing and incoming payments.

The latter procedure was established to permit the existence of a payment system in which costs were accessible for the customers even if not particularly productive for the institution itself. The lower costs are not due to a high standardisation of the process (see high level of manual intervention required – table 12) but due to agreements between the institutions for a low value system for cross-border payment transactions.

National transfers are more automated than cross-border ones and therefore less expensive. The necessity, on average, for the intervention of one intermediary bank for the processing of the payment instructions also pushes costs up.

¹³⁴ Only possible for payments up to €5 500.



Source: Allgemeine Sparkasse O. Ö. Bank AG

1.4. The German example

Some information has been provided by a branch of a German commercial bank¹³⁵ which operates on the Italian territory. It transacts cross-border retail payments only through S.W.I.F.T. and possibly through the use of cheques, while the EBA system is used only by the leading Bank AG, and not by its branches.

In receipt, the system differs from those already presented in that the procedures are divided into transfers which account for less or more than €2 500.

- In the first case (under €2 500) the procedure is completely automated, and the operator of the bank does not even see the message orders. The system works through bilateral agreements between banks, and uses a special format, which makes possible accreditation of the amount requested directly to the beneficiary's account or automatic editing of a message for the destination institution through the national network (RNI).
- In the second case (over €2 500) the extra information required for the transfer is, apart from the details of the beneficiary's and the correspondent bank, the reason for and the value of the transaction. The procedure automatically stops when the reason for the transfer is unknown or unclear. The operator in charge then calls the customer to collect the necessary information. Following this, the accreditation is finalised through RNI.

For the use of cheques, the originator's bank does not itself issue cheques, but sends an order through S.W.I.F.T. to the beneficiary's bank in order to create one.

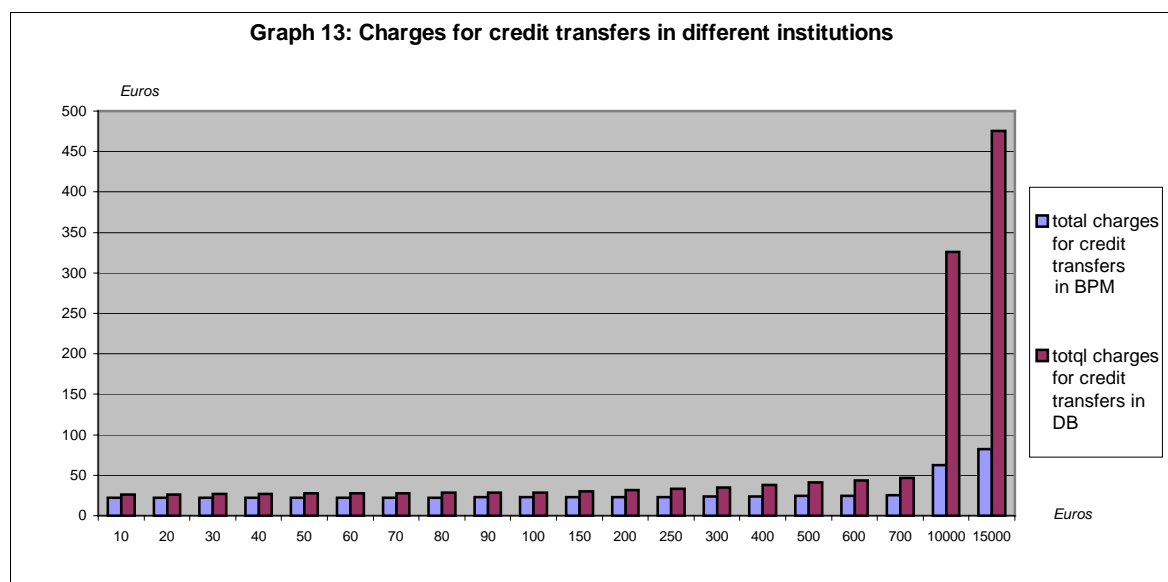
The costs charged on cross-border transfers are as follows:

In transmission: 1.5% + €15.49 (30 000 Lit)

In receipt: 1.5% + €10.33 (20 000 Lit)

¹³⁵ The statistics have been kindly provided by the Italian branch of *Deutsche Bank* –DB– Viale Legioni Romane 27, 20147 Milano. Contact person: Vice Direttore Dott. R. Cabiati, Servizio information technology e organizzazione.

Graph 13 shows the differences in the charges between the two Italian branches, one of the Italian institution – BPM – and one of the German bank – DB. It illustrates how the latter performs relatively badly, even if its procedures are partly automated. This is probably due to duality of the processing method, which is differentiating between the transmission amounts below or above the €2 500 threshold, and therefore pushes up costs. The growth trend of the charges in BPM is more consistent with respect to the other institution in which the charges are quite stable up to €10 000 (For details see Annex 2).



Source: DB and BPM

It is interesting to note, with regard to table 13, how the charges are split between the banks taking part in the transaction. The fact that different financial institutions are involved in the same process makes it difficult to charge only the originator of the transaction with all the charges, because the receipt costs of the other bank involved are rarely known in advance. It is much easier to separate the transmission from the receipt charges. Each intermediary institution reduces the amount of the transfer by a revolving commission that is fixed and the destination bank charges the beneficiary of the transaction with a quite high fee.

Table 13: Transfer from country A to country B through the same bank (DB)
Charges for banks

| | |
|--------------------------|---|
| Bank A1 / bank A2 | A2 charges A1 1.5%+ €15.49 and A1 charges the customer 1.5%+ €15.49 + mark-up |
| Bank A2 / bank B1 | Included in A1-A2 |
| Bank B1 / bank B2 | B1 charges B2 for 1.5% + €10.33 |

Source: Deutsche Bank

Bilateral agreements between the institutions involved in the transaction prevent double charging and the determination of a flat fee for payments would permit easier application of the "OUR" mode. In fact, in this case, it would not be necessary to wait until the end of the transaction in order to know exactly the costs sustained by the institutions involved in the chain.

Table 14: Transfer from country A to country B – Charges for banks

| | |
|--------------------------------------|---|
| Bank A1 / bank A2 | A2 charges A1 1.5% + €15.49 and A1 charges the customer 1.5% + €15.49 + mark-up |
| Bank A2 / bank B1 | Included in A1-A2 |
| Bank B1 / bank B2 | Transfer amount reduced by a commission |
| Bank B2 / destination bank D1 | D1 is charged for 1.5% + €10.33 |

Source: Deutsche Bank

If the process is divided into single phases, a timing for each stage can also be estimated. Table 15 shows the results of the estimation performed, and points out how the relatively higher timing is always related to the stage where more manual intervention is needed, and to those stages which are supposed to be more costly.

In fact the sending, error handling and accreditation phases are the operational stages with the lowest level of automation, and which differ mostly from one country to the other.

Table 15: Timing of processing cross-border transfers

| Operational phase | Time needed | characteristics |
|-------------------------------------|--|---|
| <i>Sending message</i> | 5 minutes | Manual insertion Standardised message format (MT100/202/101) <i><u>This is the most costly stage and accounts for approximately 50% of the total costs for transfers</u></i> |
| <i>Processing the message</i> | <1 minute | Procedure “estero”, procedure Merva |
| <i>Error handling</i> | >5 minutes | Manual intervention |
| <i>Receiving the message</i> | negligible | Procedure “estero”, procedure Merva |
| <i>Validation of the payment</i> | negligible | automatic |
| <i>Accreditation of the payment</i> | negligible (<€2 500) >7 minutes (>€2 500) | automatic manual intervention |

Source: Deutsche Bank

1.5. The Irish example¹³⁶

With the implementation of the Directive on cross-border transfers, banks are already complying with the obligations required in the document. One of the characteristics that differentiates the Irish banking system is that no reporting requirements for payments processing are required by the National Central Bank, so that the charges for cross-border transfers are reduced, especially the charges for “repairing” message orders through manual intervention. The carriers and payment systems used to process payment orders (S.W.I.F.T., EBA and sometimes Target), like the information requested of the customer in order to initiate the processing of the instructions, are in line with those required by other institutions in the different countries already presented. The main difference relates to the fact that the benchmark institution applies a fixed cost (*flat fee*) per payment, regardless of the amount and regardless of the payment system or carrier used for the processing. The only distinctions made are between:

¹³⁶ The statistics have been kindly provided by Allied Irish Banks – AIB – and AIB Capital Markets, International Centre, IFFC 11, IRL-Dublin 1. Contact persons: Mr. D. Ennis, Mr. J. Irwin, Mme. L. Yeates.

- *urgent* or *standard* payments; and
- whether the order is introduced in *electronic* or in *paper* form to the bank branch.

A flat rate is charged for a cross-border transfer and the institution itself chooses which carrier/payment system to use for the processing, depending on how the transaction can be finalised with the destination bank. One of the direct effects of this method is that, for payments in which more institutions are involved, additional costs may arise for the bank and the payment service may be not profitable for the institution. The following flat rates are charged:

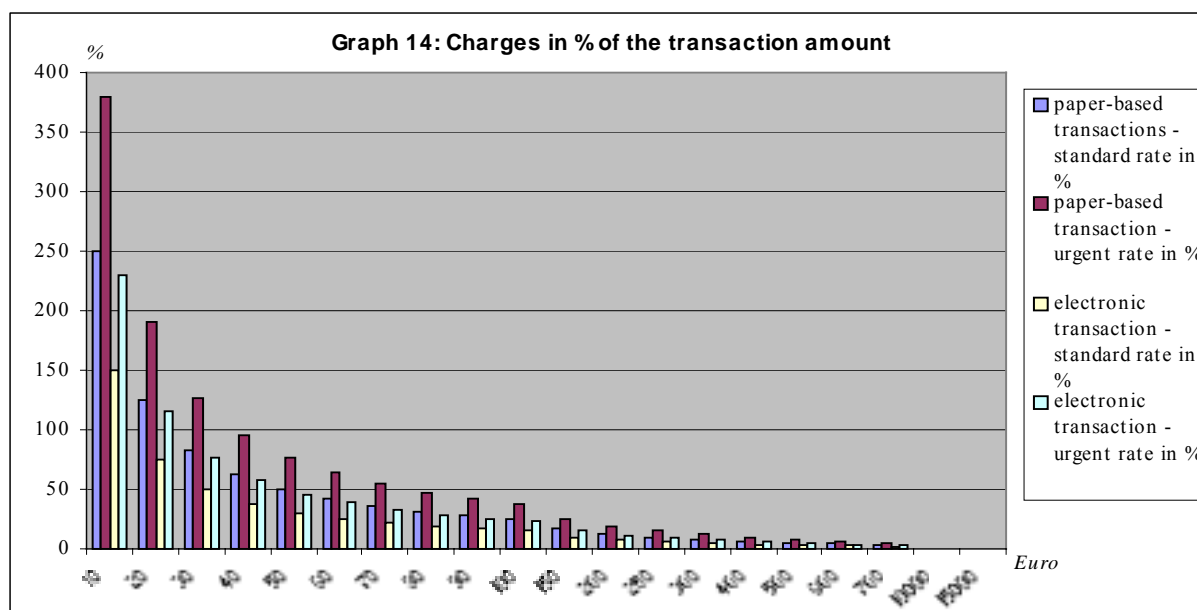
Paper-based payments

| | |
|----------------------|--------------------|
| <i>Standard rate</i> | <i>Urgent rate</i> |
| €25 (IEP 20) | €38 (IEP30) |

Electronically based payments

| | |
|----------------------|--------------------|
| <i>Standard rate</i> | <i>Urgent rate</i> |
| €15 (IEP12) | €23 (IEP18) |

The percentage impact of this flat rate on the transfers amount highlights (see graph 14) the convenience of electronic payments compared with to paper-based ones, even if charges continue to be consistently high for low payments. Ranging approximately from €10 to €70, the percentage impact of the costs is above 50% of the transaction amount.



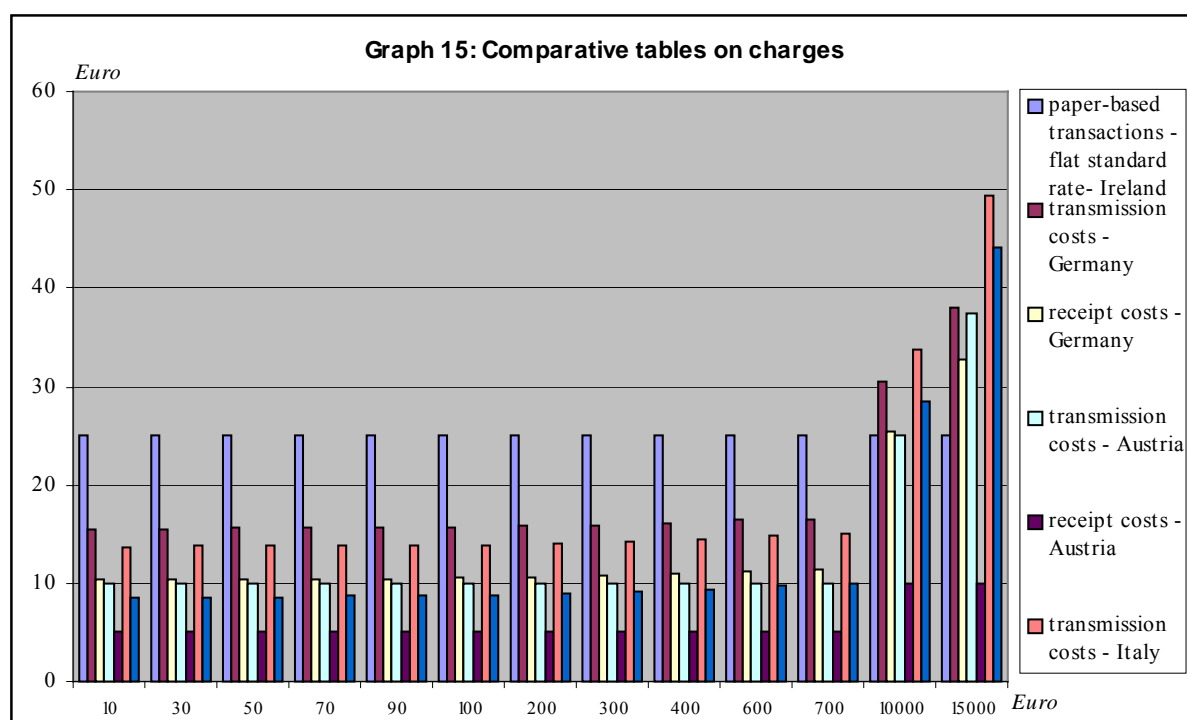
Source: AIB

2. Comparative table

This paper has focused on the costs charged for cross-border transfers through the European Union. Graph 15 shows a comparison between the charges in different countries: Ireland, Germany (Italian branch), Austria and Italy. For the latter three countries the transmission and the receipt costs are reported separately.

In the case of Ireland, however, a flat fee is charged, independent of the amount transacted and the payment system used. On the one hand, this method permits performance of the payment easily through the "OUR" mode because the charges are already known in advance. On the other hand, the costs charged for low amounts are usually higher than in the case of the other methods.

Nevertheless, generally speaking, the imposition of a flat fee may be a good solution for the customer. It may not be so, however, for the institutions concerned: the flat fee may not cover the costs performed by the banks involved in the process. Margins may in any case be low.



But the more the “critical mass” is reached – the greater the number of payment orders processed – the more profitable it will become for banks to charge a flat fee. On the other hand this method of charging makes it even more necessary to standardise procedures.

The differences in the costs charged by the financial institutions in the Member States depend crucially on **the percentage of straight-through processing**. This, in turn, depends on the **level of automation** in use.

One of the possibilities for merging the different systems is to create links between the national clearing systems or to create a European ACH. Table 16 summarises the differences between the national networks and their main characteristics.

A further major problem until now has been the **limitation of access** to some national systems, or the existence of specific requirements for access. Another is **the variation in capacity levels** – some national systems are too limited to transact cross-border payments and would be therefore inoperative even if the linkage with the other clearing centres were enhanced.

The most suitable solution would be the creation of a European Clearing House which would operate through the same carrier for all the Member States (S.W.I.F.T.).

An additional cause of the high costs in some of European countries is **the reporting requirement** for the National Central Banks, which are time-consuming and costly. Table 17 outlines briefly the situation. As pointed out earlier, the same payment may have to be reported twice, once at a cost to the originator financial institution, and once at a cost to the destination financial institution. This adds to charges, but achieves nothing of any importance at a European level.

Some countries do have an exemption threshold, below which the payment does not have to be reported; but these limits are not in line with the threshold set in the Directive on cross-border payments (€50 000). Indeed the variation in thresholds makes it impossible to manage all payments amounts in the same way, with direct consequences for costs. Some countries – for example, Ireland, Switzerland and United Kingdom – in any case manage without reporting requirements because statistics are deducted by sample based surveys.

Table 16: Reporting requirements

| country | exemption threshold | individual transaction reporting | |
|--------------------|---|---|-----------------|
| | | who | number of codes |
| <i>Austria</i> | NO | BFI ¹³⁷ and RFI ¹³⁸ | >50 |
| <i>Belgium</i> | NO | BFI and RFI | >50 |
| <i>Denmark</i> | NO | BFI | >50 |
| <i>Finland</i> | NO | | =50 |
| <i>France</i> | NO | BFI and RFI | |
| <i>Germany</i> | YES | Beneficiary | 30 |
| <i>Ireland</i> | No systematic reporting - sample based surveys only | | |
| <i>Italy</i> | YES | | >50 |
| <i>Luxembourg</i> | NO | BFI | >50 |
| <i>Netherlands</i> | NO | BFI | >50 |
| <i>Norway</i> | NO | BFI and RFI | 30 |
| <i>Portugal</i> | NO | BFI | >50 |
| <i>Spain</i> | NO | BFI and RFI | >50 |
| <i>Sweden</i> | YES | BFI and RFI | |
| <i>Switzerland</i> | No systematic reporting - sample based surveys only | | |
| <i>UK</i> | No systematic reporting - sample based surveys only | | |

Source: ECBS, (08.99), *European Banking Standard and Implementation guide for credit transfers, Vers.3*.

¹³⁷ Beneficiary Financial Institution.

¹³⁸ Receiving Financial Institution.

Table17: Specifications of the different clearing systems (Euro)

| country | clearing system | scope | characteristic | access | amount limits | Process time | domestic format |
|------------|----------------------------------|---|--|---|----------------------|--------------|-----------------|
| A | FINPAY/EDIFACT | domestic retail payments | | only banks | 5 000 | 1-2 days | standard |
| B | Electronic Clearing -CEC | all domestic payments (retail and non-retail) | works in Euro, low costs | direct and indirect access | 500 000 | 1 day | standard |
| B | S.W.I.F.T. -CLR | incoming cross-border payments | automation | S.W.I.F.T. users on the basis of bilateral agreements | | | standard |
| DK | Danish Credit Clearing | domestic retail payments | agreements | direct access | | 1 day | standard |
| FIN | S.W.I.F.T. | incoming cross-border payments | only in national currency | banks, direct/indirect access | | 0-2 days | standard |
| F | SIT ¹³⁹ | all domestic automated retail payments | end-to-end automation | banks established in France, direct/indirect access | 15 245 | 2-3 days | standard |
| D | DTA | domestic mass payments | low costs | direct access, all banks | no | 0-1 days | standard |
| IRL | Dublin Bankers' Clearing | small value clearing | electronic funds transfers also | private members | no | 0-2 days | |
| I | Bonifici in Lire di Conto Estero | incoming cross-border payments | | direct access to all banks | | 1-3 days | standard |
| L | LIPS - NET ¹⁴⁰ | domestic retail payments | automation of clearing and settlement circuits | particip. rules | 8 676.27 for cheques | | |
| NL | DNB 8007 | Incoming cross-border payment | | direct access to all banks | | 0 day | standard |
| N | NICS ¹⁴¹ | all domestic customer payments | | access fee | no | few hours | standard |
| P | TEIs ¹⁴² | domestic and incoming cross-border payments | | authoris. by the Bank of Portugal | 500 000 | 2-3 days | standard |
| SW | S.W.I.F.T. | incoming cross-border payments | domestic system lacks on capacity | direct access to all banks | | 0-3 days | standard |
| E | SNCE ¹⁴³ | domestic retail payments | low costs | all banks directly | | 1 day | standard |
| UK | CHAPS | domestic credit transfers | speed and high security | members | no | 0 days | standard |

Source: ECBS, (08.99), *European Banking Standard and Implementation guide for credit transfers, Vers.3.*

¹³⁹ **S**ystème **I**nterbancaire de **T**élécompensation.

¹⁴⁰ **L**uxembourg **I**nterbank **P**ayment **S**ystem - **N**etting **S**ystem.

¹⁴¹ **N**orwegian **I**nterbank **C**learing **S**ystem.

¹⁴² **T**ransferências **E**lectrónicas **I**nterbancárias.

¹⁴³ **E**lectronic **N**ational **C**learing **S**ystem.

CONCLUSIONS

"The objective for banks in their development of payment systems is to meet customer demand by providing efficient and secure payment mechanisms at a fair price."¹⁴⁴

The objective of this study has therefore been to identify inefficiencies in the processing of cross-border payments. Apart from making comparisons with internal national systems, it has analysed how costs are incurred in the different operational stages of the payment process, and what factors lie at the root of these costs. It has taken as generic examples the systems and operational environment in a number of different Member States.

The study has shown that most of the costs involved in routing payment instructions arise from the *collection and correction of the data required by banks from the customer in order to be able to initialise the process*. This stage, in all countries, accounts for approximately 50% of the total costs charged finally for the transaction. These costs arise from the fact that *manual intervention* is necessary to perform correcting operations, especially when the payment order is initiated by a branch which is not equipped for such transactions. Manual intervention is also necessary in order to fulfil balance of payments reporting requirements for the National Central Banks.

Besides giving rise to costs, the necessity for manual intervention is also extremely time-consuming.

In addition, the level of straight-through processing is influenced by the degree of *interoperability* between the different payment systems involved in the transaction: for example, between the national and the pan-European clearing system or the S.W.I.F.T. carrier, or between the internal systems developed by the institutions themselves, which differ widely one from another.

The third main root of the costs sustained in processing the orders is the lack of *electronic verification procedures* during the routing of the instructions, especially as regards verification of the availability of funds and verification of signatures.

In considering **solutions**, a distinction must be made between:

- those factors giving rise to costs that are exogenous to the banking system, and therefore outside their direct control; and
- those which can be corrected by the banks themselves.

One example of the former is the relatively low total value of cross-border payment orders, which does not permit systems to reach a "critical mass" of declining marginal costs. Another is the fact that customers often do not provide complete information as input, which necessitates the "repair" of payment orders, at high cost, by the specialists of the banks.

The most significant exogenous factors, however, are the result of the legal and technical framework within which the banks operate.

For example, modification of the **balance of payments reporting requirements** would directly influence costs by reducing manual intervention. It would simplify the information

¹⁴⁴ Banking Federation of the European Union, *Payment systems in the Euro zone*, 24 June 1999, Brussels, pp.2.

required from the customer in order to initiate the payment instruction. In particular, it should modify the necessity to give information on the purpose of a payment.

An immediate reform should therefore be:

- The *BoP reporting threshold should be set at €50 000*, below which no reporting requirements would be needed. This means abolition of all requirements to state the purpose of a transfer below €50 000. *Any threshold set below €50 000 creates additional problems rather than a solution.*
- Harmonisation of the reporting requirements above €50 000, to be made *either* by the originator's institution *or* by the destination institution.

Action by the banking system in a number of areas also would achieve lower costs. Financial institutions are, in any case, supposed to implement as soon as possible the obligations outlined in the Directive on cross-border transfers.

Cross-border transfers - charges:

- Banks should be able to charge a *flat fee* for cross-border transfers, independent of the payment system chosen to process the order, in accordance with the processing requirements of the correspondent banks. It is not necessary for all banks have the same flat fee¹⁴⁵.
- *Avoid* the necessity of maintaining an *account relationship* with the destination bank as a requirement for the processing of the transaction order¹⁴⁶.
- *Extend* the S.W.I.F.T. network, and allow it to *substitute for* the national networks in the Member States, so reducing the variations in codes, formalities, etc. and the consequent need for adaptation measures¹⁴⁷.
- Reimbursement, in the event of lost transfers due to internal inefficiencies of the financial institution, of *100% of the amount* of the payment order and not only a part of it¹⁴⁸.

Cross-border transfers - the process:

- Improve the use of *electronic banking* through remote access¹⁴⁹. The two main types of services are *telephone banking*; and *Internet banking*, where the Internet network is used as a message-carrier and the customer has direct access to the bank software to give inputs for the necessary transactions that he wants to finalise. These transactions involve the exchange of information rather than a physical exchange of money; and the advantages concern timing and the existence of an open system. The greatest difficulty is to provide a suitable *legal framework*.

¹⁴⁵ KBC.

¹⁴⁶ KBC.

¹⁴⁷ BPM.

¹⁴⁸ Now the "money back" guarantee is up to €12 500.

¹⁴⁹ To belong to a payment system in a Member State without having a physical presence –a branch- in that country is known as remote access. It refers to the provision of bank services where transactions are carried out without any vis-à-vis contact between the customer and the employee of the institution involved.

- Reduction in the number of banks/intermediaries involved in the process so as to reduce total charges.
- Reduction in the number of operators involved in each transaction stage through a higher rate of automation of the process¹⁵⁰ and through a better straight-through processing of the payment orders. This could be achieved only through the harmonisation and simplification of the information requested as input for the process: for example through
 - *harmonisation of the bank codes* (S.W.I.F.T. code),
 - *harmonisation of the forms to be filled in for cross-border transfers with an automatic selection of the currency of the payment* (Euro),
 - *an automatic selection of the costs charging method* ("OUR" mode) and
 - *suppression of the need to give a reason for payments below €50 000.*
- The effect would be that the information to be provided by the customer would be limited to:
 - account number, name and address of the originator
 - account number, name and address of the beneficiary
 - harmonised code, name and address of the destination bank.
- Improve the *links* and the participation to the *clearing houses network*.
- Provide an *electronic validation procedure* to initialise the payment transfer.
- Provide an *electronic verification of the disposal of funds*.
- If the payment is initialised by a branch, *no advice* of the payment need be made by fax or phone, because sending an electronic message order would include the advice function.
- Provide an *electronic message storage system* for the archives of the bank to avoid paper-based storage. For any mandatory reporting requirements the message can be copied to the central institution automatically.

Cheques:

- Confine the use of cheques to payments of *high amounts*.
- Increase the *security* of the transfer of cheques.
- Reduce the possibility of customers themselves sending the cheques to the destination institution.

¹⁵⁰ This may be already be achieved with the introduction of international standards such as IBAN and IPI.

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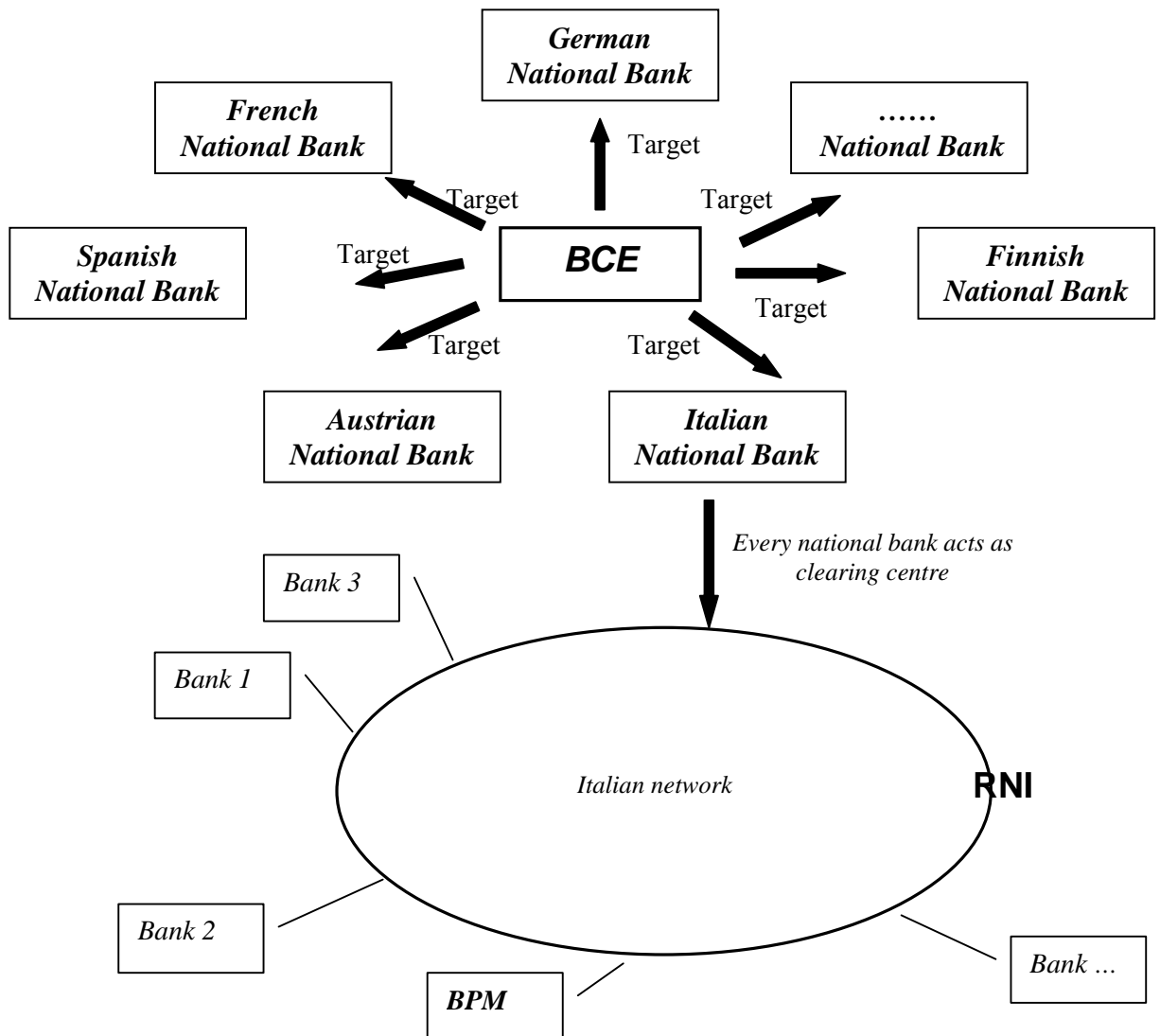
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Annex 1: Target system and RNI



Source: BPM

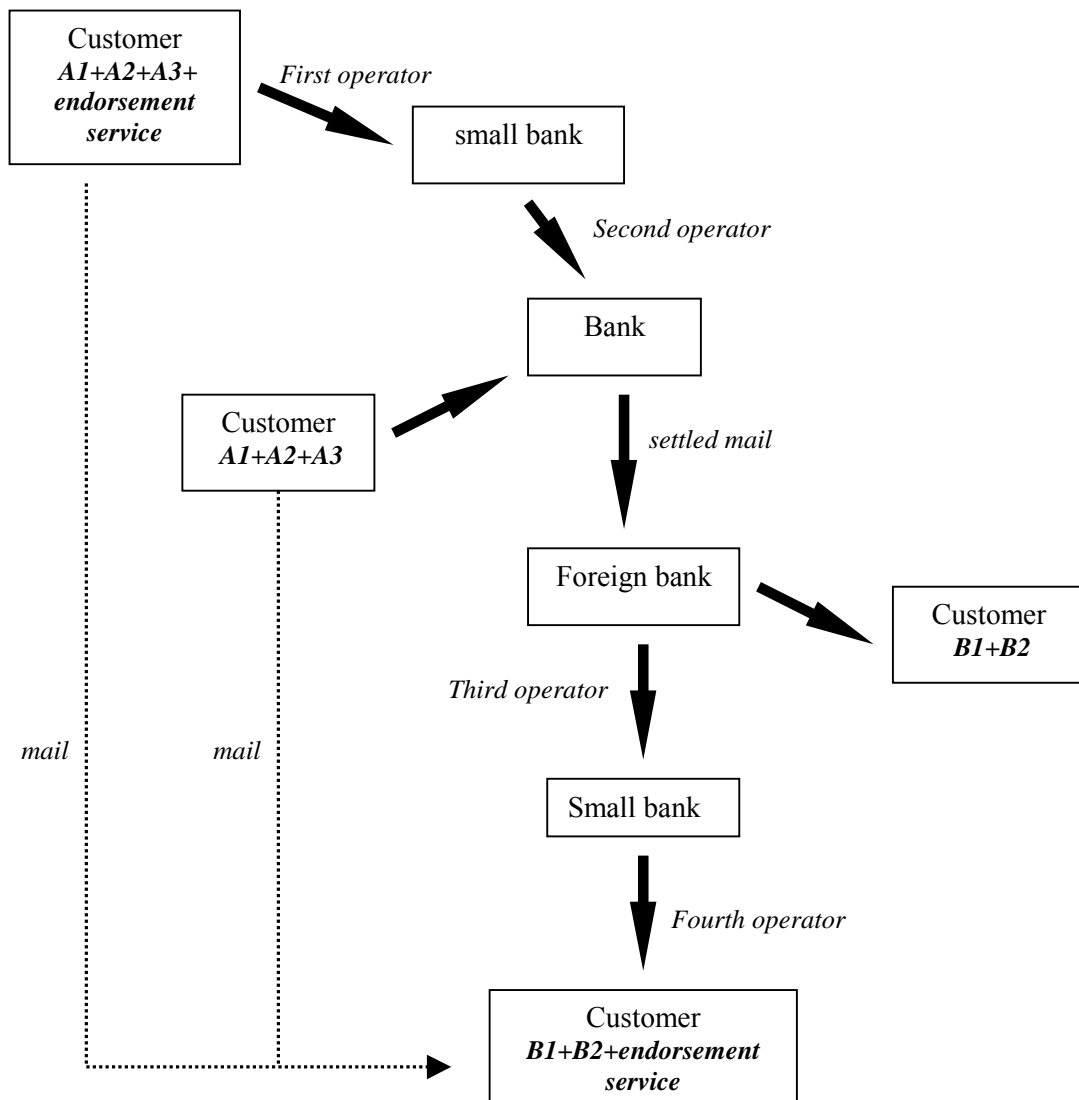
Annex 2: Charges configuration

Source: Deutsche Bank

| <i>Transfer amount</i> | <i>transmission charges</i> | <i>transmission charges in %</i> | <i>charges in receipt</i> | <i>% charges in receipt</i> | <i>total charges</i> | <i>total charges in %</i> |
|------------------------|-----------------------------|----------------------------------|---------------------------|-----------------------------|----------------------|---------------------------|
| 10 Euro | 15.51 | 155.05 | 10.35 | 103.45 | 25.85 | 258.50 |
| 20 Euro | 15.52 | 77.60 | 10.36 | 51.80 | 25.88 | 129.40 |
| 30 Euro | 15.54 | 51.78 | 10.38 | 34.58 | 25.91 | 86.37 |
| 40 Euro | 15.55 | 38.88 | 10.39 | 25.98 | 25.94 | 64.85 |
| 50 Euro | 15.57 | 31.13 | 10.41 | 20.81 | 25.97 | 51.94 |
| 60 Euro | 15.58 | 25.97 | 10.42 | 17.37 | 26.00 | 43.33 |
| 70 Euro | 15.60 | 22.28 | 10.44 | 14.91 | 26.03 | 37.19 |
| 80 Euro | 15.61 | 19.51 | 10.45 | 13.06 | 26.06 | 32.58 |
| 90 Euro | 15.63 | 17.36 | 10.47 | 11.63 | 26.09 | 28.99 |
| 100 Euro | 15.64 | 15.64 | 10.48 | 10.48 | 26.12 | 26.12 |
| 150 Euro | 15.72 | 10.48 | 10.56 | 7.04 | 26.27 | 17.51 |
| 200 Euro | 15.79 | 7.90 | 10.63 | 5.32 | 26.42 | 13.21 |
| 250 Euro | 15.87 | 6.35 | 10.71 | 4.28 | 26.57 | 10.63 |
| 300 Euro | 15.94 | 5.31 | 10.78 | 3.59 | 26.72 | 8.91 |
| 400 Euro | 16.09 | 4.02 | 10.93 | 2.73 | 27.02 | 6.76 |
| 500 Euro | 16.24 | 3.25 | 11.08 | 2.22 | 27.32 | 5.46 |
| 600 Euro | 16.39 | 2.73 | 11.23 | 1.87 | 27.62 | 4.60 |
| 700 Euro | 16.54 | 2.36 | 11.38 | 1.63 | 27.92 | 3.99 |
| 10000 Euro | 30.49 | 0.30 | 25.33 | 0.25 | 55.82 | 0.56 |
| 15000 Euro | 37.99 | 0.25 | 32.83 | 0.22 | 70.82 | 0.47 |

Annex 3: Cheques circuit

Source: BPM



Annex 4: Cross-border payments

Table: Cross-border payments sent by each RTGS system participating in or connected to TARGET: value of transactions (EUR billions)

| 1999 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ELLIPS (BE) | | | | | | | | | | | | |
| Total value | 634.8 | 609.8 | 668.8 | 644.0 | 538.2 | 627.9 | 667.3 | 619.7 | 665.1 | 718.9 | 776.8 | 747.8 |
| Daily average | 31.7 | 30.5 | 29.1 | 29.3 | 25.6 | 28.5 | 30.3 | 28.2 | 30.2 | 34.2 | 35.3 | 34.0 |
| ELS (DE) | | | | | | | | | | | | |
| Total value | 1 996.0 | 1 917.0 | 1 986.9 | 2 003.2 | 1 835.2 | 2 172.6 | 2 063.7 | 1 969.9 | 1 968.4 | 2 274.2 | 2 211.5 | 2 172.8 |
| Daily average | 99.8 | 95.9 | 86.4 | 91.1 | 87.4 | 98.8 | 93.8 | 89.5 | 89.5 | 108.3 | 100.5 | 98.8 |
| SLBE (ES) | | | | | | | | | | | | |
| Total value | 288.6 | 319.9 | 315.0 | 295.0 | 308.3 | 321.1 | 332.6 | 266.8 | 274.5 | 270.5 | 269.8 | 338.5 |
| Daily average | 14.4 | 16.0 | 13.7 | 13.4 | 14.7 | 14.6 | 15.1 | 12.1 | 12.5 | 12.9 | 12.3 | 15.4 |
| TBF (FR) | | | | | | | | | | | | |
| Total value | 989.5 | 1 116.5 | 1 280.5 | 1 178.4 | 1 095.8 | 1 344.3 | 1 316.2 | 1 237.0 | 1 182.7 | 1 204.4 | 1 142.4 | 1 177.4 |
| Daily average | 49.5 | 55.8 | 55.7 | 53.6 | 52.2 | 61.1 | 59.8 | 56.2 | 53.8 | 57.4 | 51.9 | 53.5 |
| IRIS (IE) | | | | | | | | | | | | |
| Total value | 81.0 | 65.1 | 97.0 | 89.9 | 82.7 | 88.9 | 99.5 | 80.4 | 80.6 | 103.9 | 109.0 | 91.9 |
| Daily average | 4.1 | 3.3 | 4.2 | 4.1 | 3.9 | 4.0 | 4.5 | 3.7 | 3.7 | 4.9 | 5.0 | 4.2 |
| BI-REL (IT) | | | | | | | | | | | | |
| Total value | 540.9 | 501.6 | 589.5 | 541.3 | 496.6 | 560.3 | 601.3 | 594.3 | 599.7 | 619.1 | 652.4 | 701.3 |
| Daily average | 27.0 | 25.1 | 25.6 | 24.6 | 23.6 | 25.5 | 27.3 | 27.0 | 27.3 | 29.5 | 29.7 | 31.9 |
| LIPS (LU) | | | | | | | | | | | | |
| Total value | 164.2 | 142.1 | 181.3 | 192.5 | 149.6 | 195.2 | 184.8 | 175.7 | 164.4 | 198.8 | 182.6 | 184.9 |
| Daily average | 8.2 | 7.1 | 7.9 | 8.8 | 7.1 | 8.9 | 8.4 | 8.0 | 7.5 | 9.5 | 8.3 | 8.4 |
| TOP (NL) | | | | | | | | | | | | |
| Total value | 649.0 | 550.8 | 589.6 | 605.9 | 561.5 | 647.5 | 669.2 | 536.5 | 642.7 | 801.7 | 814.1 | 782.6 |
| Daily average | 32.4 | 27.5 | 25.6 | 27.5 | 26.7 | 29.4 | 30.4 | 24.4 | 29.2 | 38.2 | 37.0 | 35.6 |
| ARTIS (AT) | | | | | | | | | | | | |
| Total value | 120.4 | 143.9 | 181.3 | 184.8 | 123.3 | 161.6 | 168.1 | 160.5 | 172.2 | 210.3 | 185.5 | 179.5 |
| Daily average | 6.0 | 7.2 | 7.9 | 8.4 | 5.9 | 7.3 | 7.6 | 7.3 | 7.8 | 10.0 | 8.4 | 8.2 |
| SPGT (PT) | | | | | | | | | | | | |
| Total value | 73.0 | 58.1 | 64.2 | 61.4 | 60.1 | 60.2 | 71.1 | 69.4 | 69.8 | 79.1 | 71.3 | 70.5 |
| Daily average | 3.6 | 2.9 | 2.8 | 2.8 | 2.9 | 2.7 | 3.2 | 3.2 | 3.2 | 3.8 | 3.2 | 3.2 |
| BOF-RTGS (FI) | | | | | | | | | | | | |
| Total value | 143.8 | 127.6 | 136.3 | 126.4 | 103.8 | 121.1 | 113.8 | 120.1 | 120.4 | 115.5 | 132.8 | 128.8 |
| Daily average | 7.2 | 6.4 | 5.9 | 5.7 | 4.9 | 5.5 | 5.2 | 5.5 | 5.5 | 5.5 | 6.0 | 5.9 |
| EPM (ECB) | | | | | | | | | | | | |
| Total value | 197.7 | 181.8 | 209.9 | 202.2 | 181.3 | 192.1 | 184.8 | 191.5 | 196.1 | 203.1 | 202.5 | 192.9 |
| Daily average | 9.9 | 9.1 | 9.1 | 9.2 | 8.6 | 8.7 | 8.4 | 8.7 | 8.9 | 9.7 | 9.2 | 8.8 |
| DEBES (DK) | | | | | | | | | | | | |
| Total value | 79.0 | 83.8 | 101.7 | 114.9 | 100.0 | 110.8 | 110.6 | 95.5 | 101.1 | 98.5 | 112.4 | 100.9 |
| Daily average | 4.0 | 4.2 | 4.4 | 5.2 | 4.8 | 5.0 | 5.0 | 4.3 | 4.6 | 4.7 | 5.1 | 4.6 |
| HERMES (GR) | | | | | | | | | | | | |
| Total value | 22.8 | 25.8 | 28.1 | 26.4 | 26.3 | 29.8 | 29.4 | 27.4 | 27.2 | 26.7 | 26.8 | 28.8 |
| Daily average | 1.1 | 1.3 | 1.2 | 1.2 | 1.3 | 1.4 | 1.3 | 1.2 | 1.2 | 1.3 | 1.2 | 1.3 |
| Euro RIX (SE) | | | | | | | | | | | | |
| Total value | 102.3 | 100.8 | 109.6 | 122.5 | 113.6 | 124.6 | 107.5 | 105.0 | 114.2 | 116.3 | 128.3 | 126.1 |
| Daily average | 5.1 | 5.0 | 4.8 | 5.6 | 5.4 | 5.7 | 4.9 | 4.8 | 5.2 | 5.5 | 5.8 | 5.7 |
| CHAPS (UK) | | | | | | | | | | | | |
| Total value | 1 024.1 | 1 060.8 | 1 317.0 | 1 315.6 | 1 228.5 | 1 370.8 | 1 368.2 | 1 276.9 | 1 372.0 | 1 373.6 | 1 330.1 | 1 275.2 |
| Daily average | 51.2 | 53.0 | 57.3 | 59.8 | 58.5 | 62.3 | 62.2 | 58.0 | 62.4 | 65.4 | 60.5 | 58.0 |

Source: European Central Bank - Statistics

**Table: Domestic payments in each RTGS system
participating in or connected to TARGET:
value of transactions (EUR billions)**

| 1999 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ELLIPS (BE) | | | | | | | | | | | | |
| Total value | 487.3 | 358.8 | 396.6 | 391.7 | 315.4 | 304.4 | 271.6 | 267.3 | 290.4 | 342.9 | 327.0 | 319.0 |
| Daily average | 24.4 | 17.9 | 17.2 | 17.8 | 15.0 | 13.8 | 12.3 | 12.2 | 13.2 | 16.3 | 14.9 | 14.5 |
| ELS (DE) | | | | | | | | | | | | |
| Total value | 2 246.7 | 1 681.4 | 2 012.4 | 1 857.4 | 1 605.8 | 1 842.4 | 1 740.7 | 1 627.1 | 1 792.4 | 1 888.2 | 1 910.8 | 2 169.3 |
| Daily average | 112.3 | 84.1 | 87.5 | 84.4 | 76.5 | 83.7 | 79.1 | 74.0 | 81.5 | 89.9 | 86.9 | 98.6 |
| SLBE (ES) | | | | | | | | | | | | |
| Total value | 2 448.7 | 2 259.3 | 2 696.8 | 2 272.1 | 2 243.6 | 2 307.8 | 2 304.3 | 2 056.5 | 2 218.3 | 2 022.3 | 2 119.7 | 2 163.3 |
| Daily average | 122.4 | 113.0 | 117.3 | 103.3 | 106.8 | 104.9 | 104.7 | 93.5 | 100.8 | 96.3 | 96.4 | 98.3 |
| TBF (FR) | | | | | | | | | | | | |
| Total value | 4 565.1 | 4 356.0 | 4 552.2 | 4 705.7 | 3 985.5 | 4 258.3 | 4 319.3 | 3 907.5 | 4 169.1 | 4 345.2 | 4 184.5 | 4 569.8 |
| Daily average | 228.3 | 217.8 | 197.9 | 213.9 | 189.8 | 193.6 | 196.3 | 177.6 | 189.5 | 206.9 | 190.2 | 207.7 |
| IRIS (IE) | | | | | | | | | | | | |
| Total value | 239.4 | 193.0 | 207.7 | 176.8 | 175.5 | 185.6 | 223.5 | 201.7 | 199.8 | 214.7 | 230.5 | 276.6 |
| Daily average | 12.0 | 9.7 | 9.0 | 8.0 | 8.4 | 8.4 | 10.2 | 9.2 | 9.1 | 10.2 | 10.5 | 12.6 |
| BI-REL (IT) | | | | | | | | | | | | |
| Total value | 1 846.6 | 1 458.7 | 1 553.1 | 1 499.3 | 1 356.8 | 1 534.5 | 1 563.6 | 1 318.4 | 1 314.4 | 1 308.2 | 1 416.6 | 1 465.5 |
| Daily average | 92.3 | 72.9 | 67.5 | 68.2 | 64.6 | 69.8 | 71.1 | 59.9 | 59.7 | 62.3 | 64.4 | 66.6 |
| LIPS-Gross (LU) | | | | | | | | | | | | |
| Total value | 56.2 | 53.6 | 60.0 | 63.9 | 51.9 | 62.5 | 65.9 | 56.2 | 56.9 | 55.4 | 64.4 | 63.9 |
| Daily average | 2.8 | 2.7 | 2.6 | 2.9 | 2.5 | 2.8 | 3.0 | 2.6 | 2.6 | 2.6 | 2.9 | 2.9 |
| TOP (NL) | | | | | | | | | | | | |
| Total value | 1 006.8 | 775.9 | 800.8 | 849.3 | 786.0 | 829.0 | 887.4 | 817.3 | 871.9 | 868.4 | 915.1 | 890.6 |
| Daily average | 50.3 | 38.8 | 34.8 | 38.6 | 37.4 | 37.7 | 40.3 | 37.2 | 39.6 | 41.4 | 41.6 | 40.5 |
| ARTIS (AT) | | | | | | | | | | | | |
| Total value | 187.2 | 163.7 | 191.9 | 160.8 | 143.4 | 159.4 | 171.8 | 157.5 | 164.2 | 159.2 | 183.4 | 191.7 |
| Daily average | 9.4 | 8.2 | 8.3 | 7.3 | 6.8 | 7.2 | 7.8 | 7.2 | 7.5 | 7.6 | 8.3 | 8.7 |
| SPGT (PT) | | | | | | | | | | | | |
| Total value | 179.4 | 120.9 | 137.6 | 118.3 | 123.1 | 122.2 | 140.4 | 115.2 | 112.3 | 110.9 | 124.2 | 111.8 |
| Daily average | 9.0 | 6.0 | 6.0 | 5.4 | 5.9 | 5.6 | 6.4 | 5.2 | 5.1 | 5.3 | 5.6 | 5.1 |
| BOF-RTGS (FI) | | | | | | | | | | | | |
| Total value | 133.5 | 112.8 | 130.0 | 120.2 | 89.3 | 110.0 | 96.4 | 89.2 | 105.6 | 109.0 | 108.2 | 104.5 |
| Daily average | 6.7 | 5.6 | 5.7 | 5.5 | 4.3 | 5.0 | 4.4 | 4.1 | 4.8 | 5.2 | 4.9 | 4.8 |
| DEBES (DK) | | | | | | | | | | | | |
| Total value | 0.7 | 0.8 | 1.0 | 0.7 | 1.2 | 1.2 | 1.6 | 1.1 | 1.6 | 1.0 | 1.3 | 1.2 |
| Daily average | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 |
| HERMES euro (GR) | | | | | | | | | | | | |
| Total value | 1.0 | 0.6 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 |
| Daily average | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Euro RIX (SE) | | | | | | | | | | | | |
| Total value | 9.3 | 4.1 | 5.5 | 6.1 | 6.0 | 7.8 | 6.7 | 5.6 | 5.5 | 7.1 | 7.0 | 4.2 |
| Daily average | 0.5 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 |
| CHAPS Euro (UK) | | | | | | | | | | | | |
| Total value | 324.5 | 323.6 | 392.6 | 372.9 | 364.2 | 453.1 | 444.4 | 414.2 | 405.3 | 399.9 | 378.3 | 362.4 |
| Daily average | 16.2 | 16.2 | 17.1 | 17.0 | 17.3 | 20.6 | 20.2 | 18.8 | 18.4 | 19.0 | 17.2 | 16.5 |

Source: European Central Bank - Statistics

Annex 5: S.W.I.F.T. pricing¹⁵¹

The pricing is defined by three criteria computed in a matrix; the *volume* of transaction messages, the national or international *route* and the intra¹⁵²- or inter-national¹⁵³ *traffic*.

| EUR FIN price per 100 base messages | | | | | | | |
|---|----------|---------------------------------|------|------|------|----------------------|---------------------------|
| Volume (average quarterly traffic sent) | National | International inter-institution | | | | Million message/year | Intra-institution traffic |
| | | A | B | C | D | | |
| above 6,000,001 | 7.5 | 10.0 | 11.0 | 12.5 | 15.0 | 0-30 | 8.75 |
| 3,000,001-6,000,000 | 7.5 | 10.5 | 11.5 | 13.0 | 15.5 | 30-40 | 8.5 |
| etc. | 7.5 | ... | ... | ... | ... | etc. | ... |
| up to 180,000 | 7.5 | 25.0 | 25.0 | 27.5 | 31.5 | above 90 | 5.5 |

| International inter-institution – traffic routes | | | |
|--|-------|-------|--------------|
| A | B | C | D |
| AU-US | AT-DE | DE-SE | other routes |
| BE-GB | AU-GB | DK-GB | |
| CA-US | GB-LU | DK-US | |
| etc. | etc. | etc. | |

Source: 2000 Fin Price Plan

¹⁵¹ This information was kindly provided by Mr. De Mees, Customer Billing Service, S.W.I.F.T..

¹⁵² Traffic flow between parts of the same financial institution.

¹⁵³ Traffic flow not in-between the same financial institution.

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