

**International payment
arrangements**

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1. SWIFT

1.1 Introduction

The Society for Worldwide Interbank Financial Telecommunication (SWIFT) is an industry-owned limited liability cooperative society set up under Belgian law and controlled by its member banks (including central banks) and other financial institutions. SWIFT's business is to supply secure messaging services and interface software, to contribute to greater automation of financial transaction processes and to provide a forum for financial institutions to address issues of common concern in the area of financial communication services. Messaging services are provided to banks, broker/dealers and investment managers, as well as to market infrastructures in payments, treasury, securities and trade.

SWIFT was founded in 1973 by 239 banks from 15 countries. Since then, there has been a steady increase in the number of financial institutions and countries connected to SWIFT. By the end of 2002, more than 7,400 financial institutions from 198 countries were connected. There are three categories of SWIFT users: members (shareholders), sub-members (ie subsidiaries controlled by members) and participants. Members can benefit from all the services offered by SWIFT, whereas participants only have restricted access to a range of services that relates to their business. Types of participants include securities brokers and dealers, investment management institutions, fund administrators, money brokers and various other institutions, mainly from within the securities business. By the end of 2002, SWIFT provided services to 2,203 members, 3,079 sub-members and 2,183 participants.

In 2002, SWIFT carried over 1.8 billion messages. Average daily traffic is above 7 million messages. The average daily value of payment messages on SWIFT is estimated to be above EUR 6 trillion.

1.2 Governance

SWIFT has an Executive Board of up to 25 directors which is responsible for governing the company. The Board of Directors oversees the Executive, a team of full-time employees headed by a Chief Executive Officer. The Board of Directors has seven committees with delegated decision powers: Audit and Finance, Banking and Payments, Compensation, 'E', Securities, Standards, Technology and Production. The Audit and Finance Committee (AFC) has six Board Directors and is a governance and oversight body for systems security, internal control and financial policy. The AFC meets four to five times per year with the Executive, the Director of Audit and Risk Assurance and external auditors to review systems security, accounting policy, reporting, auditing and control matters, as well as the evolution of the balance sheet, subsidiaries and financial projections. The AFC has powers delegated from the Board in these matters.

SWIFT has two separate mandates for external audit: a financial audit mandate and a security audit mandate. The mandates of the external auditors are decided by the AFC.

In addition, SWIFT facilitates or performs an annual audit of its services to some of the market infrastructures it supplies. Market infrastructures with audit and assurance clauses include CREST, CLS, ECB/TARGET, EBA/EURO netting, LCN Spain and Bolero.

SWIFT has ongoing dialogues with its users through national member groups, user groups and dedicated working groups, which can be involved in activities like reviewing standards proposals, providing industry comments or proposing network implementation time frames and scenarios.

1.3 Oversight

The international dimension of SWIFT's activities is reflected in the oversight arrangements in place. The oversight of SWIFT is based on a special arrangement agreed by the central banks of the G10 countries. Under this arrangement, the National Bank of Belgium (NBB), the central bank of the country in which SWIFT's headquarters are located, acts as lead overseer of SWIFT, supported by the G10 central banks. The NBB is responsible for the day-to-day oversight relationship with SWIFT. The CPSS is briefed on the outcome of the oversight of SWIFT and may provide direction to the overseers about what to focus on during their oversight activities.

The primary focus of the oversight of SWIFT is on the security and operational reliability of the SWIFT infrastructure. Concretely, the objective of the oversight of SWIFT is to confirm that SWIFT has put in place appropriate structures, processes, risk management procedures and controls to effectively manage the risks it may pose to financial stability and to the soundness of financial infrastructures. In this context, governance, management and operations of SWIFT are also reviewed.

The NBB organises at least twice a year a high-level meeting between senior representatives from a selection of G10 central banks and the SWIFT senior management and SWIFT board representatives. The G10 central banks bring forward issues that may arise from the oversight process and make recommendations, suggestions and proposals to SWIFT. SWIFT explains any relevant measures it has taken or plans to take in response to the overseers' suggestions.

This oversight does not grant SWIFT any certification, approval or authorisation. SWIFT continues to bear the responsibility for the security and reliability of its systems, products and services.

1.4 SWIFT messaging

SWIFT is the most widely used payment services provider worldwide. As the main carrier for payment information, its message types, formats and technical infrastructure set a kind of benchmark for the processing of payments.

SWIFT's core application is called FIN, a store-and-forward messaging service. In 2002, availability of FIN was consistently above 99.99%. FIN traffic can be broken down as follows:¹

FIN traffic distribution by market

– payments	60.7%
– securities	30.5%
– treasury	6.0%
– trade finance	2.4%
– system	0.4%

FIN traffic distribution by region

– Europe	66.6%
– Americas	18.0%
– Asia-Pacific	11.7%
– Africa	2.4%
– Middle East	1.2%

In 2002, SWIFT started the migration of its core FIN application from an X.25 network (a network technology that is becoming obsolete) to an IP-based network. With the introduction of IP-based technologies, SWIFT will expand its services base, offering new interactive services.

The suite of new services is grouped under SWIFTNet services. SWIFTNet business solutions that are currently being developed relate to cash reporting, bulk payments processing and securities reporting. To promote the use of SWIFTNet and XML-based cash reporting tools among major cash clearing banks and their correspondents, a working group has been set up to design the industry solution and to agree upon query/response standards and a rule book. In bulk payments, a new XML-based message standard was developed and introduced in 2002. In 2001 the first domestic market infrastructures went live on SWIFTNet. The SWIFTNet messaging services using the new Secure Internet Protocol Network (SIPN) were fully implemented by the Deutsche Bundesbank's RTGS^{plus} and the Bank of England's Enquiry Link.

In the world of e-commerce, SWIFT is developing some of the tools necessary to deliver the value that the internet can offer to the financial industry and is also working with member institutions to develop e-payment initiation standards.

¹ December 2002 YTD figures.

1.5 Market infrastructures

SWIFT provides messaging and connectivity services to a growing number of market infrastructures: CLS, netting services (eg Euro 1 and STEP 1 of the Euro Banking Association), stock exchanges (eg Euronext), CSDs (eg CREST), CCPs (eg LCH), ICSDs (Euroclear, Clearstream) and RTGS systems.

In the European Union, SWIFT provides the messaging service of the TARGET Interlinking Network that connects the RTGS systems of the 15 central banks participating in TARGET, as well as the messaging for a large part of the national RTGS systems themselves: ELLIPS (Belgium), KRONOS (Denmark), BOF-RTGS (Finland), TBF/PNS (France), HERMES (Greece), IRIS (Ireland), BIREL (Italy), LIPS (Luxembourg), SPI (Spain) and RIX (Sweden). In August 2001, NewCHAPS, the United Kingdom's RTGS system for sterling and euro clearing, moved to FIN copy. The Deutsche Bundesbank's RTGS^{plus} system went live on SWIFTNet and FIN copy in November 2001.

2. Visa International

2.1 The organisation

Visa International is a private, for-profit membership association owned by 21,000 financial institutions worldwide. It consists of six regional divisions: Asia-Pacific; Canada; Central & Eastern Europe, Middle East & Africa (CEMEA); European Union; Latin America & Caribbean; and United States. Membership is limited to deposit-taking financial institutions and to bank-owned organisations operating in the bank card sector, such as Carte Bleue in France and Servizi Interbancari in Italy.

Visa is managed by an international board and by six autonomous regional boards. The international board is responsible for global policy; it provides the operating regulations and by-laws and manages a worldwide electronic system which handles authorisations and the transmission of clearing and settlement data. The regional boards have full autonomy in defining commercial policies and promoting Visa products within their geographical areas. Member institutions market and issue cards to their customers in accordance with their own decisions. In particular, it is up to Visa members to set and charge fees and interest, to decide on credit and spending limits and to choose which benefits should be offered to their cardholders.

2.2 The services

Visa provides the global platforms, systems and processing services needed by members to develop and run card payment businesses. It also contributes to the establishment of standards for global interoperability and security and new technologies in the card payments industry.

Visa has developed a portfolio of products - from ATM cash cards and electronic purses to debit and credit cards. It includes PLUS, Visa Electron, Visa Classic, Visa Gold, Visa Platinum, Visa Infinite and Visa traveller's cheques. Visa has also created a range of commercial cards like Visa Purchasing for large companies and Visa Business for smaller companies.

2.3 Technical, organisational and clearing aspects

2.3.1 Data transmission

VisaNet is the computer and telecommunications network which links Visa's member financial institutions worldwide with the two Visa Interchange Centres. Each of these centres is capable of processing every Visa transaction in order to ensure the regular working of the system should a disaster put one out of action. Two applications are managed through VisaNet: the Base I authorisation service and the Base II clearing and settlement service. VisaNet is operated by Inovant, Visa's information technology and processing services subsidiary.

2.3.2 Authorisation

Before a transaction is finalised, a series of security checks is carried out through VisaNet in order to ensure that the card is valid; has not been lost, stolen or forged; the cardholder's spending limit has not been exceeded; and the cardholder's personal identification number (PIN), if used, is correct. The Visa authorisation service operates 24 hours a day, seven days a week.

2.3.3 Clearing and settlement procedures

The Visa International Base II system clears transactions and facilitates settlement. It operates six days a week. To complete such calculations, Visa International supports approximately 180 transaction currencies, thus enabling the processing of international transactions. Members can choose to receive their transaction reports in any of these currencies.

Twenty-six currencies can be used in the net settlement between Visa International and the participating members, the choice of currency being decided by each member involved in the settlement. The necessary foreign exchange operations are executed with two banks, one located in London (Barclays) and one in New York (Citibank).

Settlement is not carried out through Base II; Visa merely provides the data to allow settlement to be carried out. For settlement in US dollars, Chase Manhattan Bank, New York, acts as the settlement bank. For multicurrency settlement, Chase Manhattan Bank, London, acts as the settlement bank. All members may hold their own settlement account with any other financial institution, such that all requests for funds or payments are ultimately settled through the correspondent services of domestic clearing and settlement systems.

2.4 Other developments

The global Visa Secure e-Commerce Initiative was announced in 2000 to improve the security of cardholder data and guarantee the identity of buyers and sellers on the internet. The initiative includes the following programs: the Visa Account Information Security Program, the Best Business Practices Program and the Visa Authenticated Payment Program. The first two programs establish standards and best practices for e-commerce merchants, allowing them to ensure the security of cardholder data on their sites. The Visa Authenticated Payment Program is designed to identify and authenticate cardholders on the internet using either the Three-Domain Secure (3-D Secure) protocol or the SET protocol. The term "Three-Domain Secure" refers to the three areas of a payment card transaction flow: i) cardholders and their banks (the issuing domain); ii) merchants and their banks (the acquiring domain); and iii) between the banks themselves (the interoperability domain). This model gives banks a choice in selecting the technology they use to authenticate their cardholders and merchants. Interoperability between the issuer and the acquirer is achieved through the use of a common protocol.

Visa is a cofounder of the Mobile Payment Forum, a non-profit making cross-industry organisation launched in November 2001 with the aim of creating a framework for standardised, secure and authenticated mobile payments, based on payment card accounts. The Forum currently has over 100 member organisations from the banking, telecommunications and mobile industries.

Anticipating continuing strong growth in payments worldwide, Visa will enhance its technological platform VisaNet in the future around a new framework called the VisaNet Distributed Processing Solution (VDPS). It will operate over an IP-based network which is being implemented globally. VDPS is designed to upgrade current hardware and software to speed up the implementation of new applications, allow faster expansion of transaction authorisation capacity, and take advantage of streamlined clearing and settlement. It will also enable each of Visa's six regional organisations, starting with the EU region, to install, administer and customise hardware and software in regionally dedicated data centres, giving them the ability to roll out local product and service innovations more quickly in order to take advantage of local opportunities.

Key Visa statistics

As of 30 September 2002

	Worldwide total	Asia-Pacific	Canada	CEMEA	European Union	Latin America & Caribb	United States
Transaction data for the 9 months ending on 30 September 2002							
Purchase transactions							
Value (USD billions)	1,522.8	220.3	61.9	14.1	446.3	41.5	738.7
Cash transactions							
Value (USD billions)	862.6	173.2	7.1	72.1	245.8	132.8	231.8
Total transactions							
Number of transactions (millions)	33,352	3,434	961	1,077	10,833	2,906	14,141
Change vs same period one year ago (as a %)	14.6	26.3	4.6	38.6	14.2	14.7	11.6
Value of transactions (USD billions)	2,385.4	393.4	69.0	86.1	692.1	174.2	970.5
Status data as at 30 September 2002							
Customer base							
Number of accounts (millions)	811.3	157.1	19.2	37.5	180.7	118.6	298.2
Number of cards (millions)	960.2	177.3	26.5	41.6	198.5	131.2	385.0

Note: Includes all card programmes (Classic, Premium, Commercial/Business, Electron, Credit and Debit Programmes). Excludes Interlink.

Source: *Visa International Quarterly Statistical Report*.

3. MasterCard International

3.1 The organisation

MasterCard International and Europay International merged under the name MasterCard International on 1 July 2002. MasterCard was established in 1966 as the Interbank Card Association. Europay International SA was established in Belgium in 1992. Before the merger, both MasterCard International and Europay International were membership associations. In the new corporate structure, MasterCard International is the primary operating subsidiary of MasterCard Incorporated. Principal members of MasterCard International own the shares of MasterCard Incorporated.

MasterCard International has approximately 25,000 MasterCard, Cirrus and Maestro members. MasterCard International owns, manages and licenses international retail product brands as well as manages an international telecommunications network and processing centre. Its corporate headquarters are located in Purchase, New York. Regional headquarters are located in Waterloo, Singapore, Miami and Dubai.

MasterCard International provides three major services for its member institutions. It establishes standards for acceptance and settlement of transactions, it provides a communications network for electronic funds and information transfer, and it supports marketing efforts of the member institutions, both from a MasterCard brand perspective and an individual institution perspective.

Member institutions market and issue cards to customers and make their own decisions about pricing and marketing (issuing activity). They also sign up and provide services to merchants which accept cards and make their own decisions about the discount rate (acquiring activity).

3.2 The services

MasterCard offers a range of cashless payment services. As of June 2002, there were approximately 520 million MasterCard branded cards worldwide and approximately 433 million Maestro branded cards worldwide. A range of credit card facilities is available under the MasterCard brand name. All MasterCard cards are accepted worldwide.

MasterCard offers the MasterCard/Cirrus/Maestro branded products. These products include both POS and ATM products. The MasterCard/Cirrus/Maestro services form a worldwide debit service. MasterCard owns the MasterCard/Cirrus ATM network. It has approximately 800,000 locations where customers can obtain cash at banks or ATMs. Maestro is a global PIN-based debit service that allows customers to pay at the point of sale and to obtain cash at ATMs.

MasterCard International provides prepaid cards that may be used at any location where MasterCard cards are accepted. MasterCard International also provides traveller's cheques, which are primarily issued by a single member bank. The traveller's cheques are accepted at retailers displaying the appropriate logos.

3.3 Technical, organisational and clearing aspects

3.3.1 Data transmission

MasterCard International operates BankNet, the telecommunications network that links members and processing centres. BankNet routes transactions for authorisation. Its Virtual Private Network (VPN) enhances BankNet by reducing authorisation time. In addition, in 2001, MasterCard International opened its Global Technology and Operations facility, a new payments processing centre located in the United States. It combined four separate operations facilities into one central processing centre.

3.3.2 Authorisation

The method of authorisation of the transaction depends partly on the payment instrument used to initiate the funds transfer. Processing time for the MasterCard International portion of authorisation is less than two seconds.

3.3.3 Clearing and settlement procedures

MasterCard International introduced its Global Clearing Management System in 2002. Net settlements are generally conducted daily among members of MasterCard International by wire transfer. However, some transactions may not settle until one to four calendar days after the transaction occurs. MasterCard International requires some members to post collateral to mitigate settlement risk.

3.4 Other developments

MasterCard International is actively involved in various initiatives and working groups concerning new technological developments. In October 2002, MasterCard International announced a new smartcard application based on the specifications promulgated by EMV 2000. EMVCo publishes specifications for the use of EMV smartcards and terminals for secure payments over the internet (www.emvco.com).

MasterCard International is also a founding member of the Global Mobile Commerce Team - a group of industry leaders working together to identify issues and propose solutions for the mobile commerce sector in order to facilitate the provision of secure, interoperable mobile payments.

MasterCard International has developed a number of products specifically for use on the internet. It developed an authentication standard and an associated data transport mechanism in order to increase security of information transmission for members. It also developed the Site Data Protection

Service, which helps internet merchants reduce fraud risks by identifying potential weaknesses and fixing problems in merchant internet infrastructure.

Key Mastercard statistics

As of 30 September 2002, includes all card programmes except online debit programmes

	World-wide total	Asia/Pacific	Canada	South Asia/Middle East/Africa	Europe	Latin America	United States
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Transaction data for the 9 months ending on 30 September 2002

Purchase transactions							
– value (USD billions) ¹	580.3	89.1	19.2	3.9	130.8	16.1	321.2
– change vs same period one year ago (as a %) ²	14.4	7.3	19.1	23.1	13.3	16.9	16.6
Cash transactions							
– value (USD billions) ³	251.4	76.8	4.2	1.7	41.8	8.4	118.5
– change vs same period one year ago (as a %) ²	20.3	19.7	23.2	23.2	14.4	49.1	21.0
Total transactions							
– number of transactions (millions)	9,844.9	1,114.9	355.0	120.6	2,737.7	517.6	4,999.1
– change vs same period one year ago (as a %) ²	nav	nav	nav	nav	nav	nav	nav
– value of transactions (USD billions) ⁴	831.7	165.9	23.4	5.6	172.6	24.4	439.7
– change vs same period one year ago (as a %) ²	16.1	12.7	19.8	23.1	13.6	26.3	17.8

Status data as of 30 September 2002

Customer base							
– number of accounts (millions)	482.1	101.2	17.6	6.4	75.4	34.9	246.7
– change vs 30 September 2001 (as a %) ²	nav	nav	nav	nav	nav	nav	nav
– number of cards (millions) ⁵	578.8	110.8	23.2	7.3	84.7	43.9	308.9
– change vs 30 September 2001 (as a %) ²	nav	nav	nav	nav	nav	nav	nav

¹ The aggregate dollar amount of purchases made with MasterCard-branded cards for the relevant period. ² Period-over-period rates of change are calculated solely on the basis of local currency information in order to eliminate the impact of changes in the value of foreign currencies against the US dollar in calculating such rates of change. ³ The aggregate dollar amount of cash disbursements obtained with MasterCard-branded cards for the relevant period. ⁴ Represents purchase volume plus cash volume and includes the impact of balance transfers and convenience cheques. ⁵ Includes virtual cards which are MasterCard-branded payment accounts in connection with which functional cards are not generally issued.

Source: MasterCard Incorporated SEC Form 8-K, 13 November 2002.

4. CLS Bank International

CLS Bank International, New York, New York (CLS Bank) is an Edge Act corporation organised under the laws of the United States, and chartered and supervised by the Federal Reserve. CLS Bank is a wholly owned subsidiary of CLS UK Intermediate Holdings Ltd, a limited company incorporated under the laws of England and Wales that provides certain corporate services to CLS Bank and its affiliated companies. CLS Group Holdings AG (CLS Group Holdings) is a company incorporated under the laws of Switzerland and regulated by the Federal Reserve as a bank holding company in the United States. CLS Group Holdings is the group holding company of CLS UK Intermediate Holdings Ltd, CLS Bank, and CLS Services Ltd (CLS Services). CLS Services is a limited company incorporated under the laws of England and Wales that provides operational and back office support to CLS Bank and its affiliated companies.

CLS Bank was formed to provide multicurrency payment services that will reduce substantially the risk to financial institutions of settling foreign exchange contracts. CLS Bank currently provides settlement for foreign exchange transactions involving the Australian dollar, the pound sterling, the Canadian dollar, the euro, the Japanese yen, the Swiss franc and the US dollar.

CLS Bank represents an important advance in risk reduction for foreign exchange settlement. CLS Bank eliminates the principal risk that one leg of a foreign exchange transaction would be settled and the other would not by providing for the simultaneous settlement on its books of both legs of a foreign exchange transaction on the basis of payment versus payment. To facilitate its multicurrency operations, CLS Bank maintains an account at each of the central banks whose currencies it settles.

4.1 Operation of CLS Bank International

Daily operations are carried out by CLS Bank and its operations affiliate, CLS Services. Foreign exchange settlement instructions are settled on the books of CLS Bank, which contracts out most of its processing to CLS Services. CLS Services manages and maintains the technical infrastructure necessary to operate CLS Bank.

On a daily basis, CLS Services receives, validates and matches foreign exchange settlement instructions and determines whether they are eligible for settlement at CLS Bank. On the date prior to the settlement (value) date, CLS Services transfers all eligible instructions to CLS Bank. Instructions to be settled by CLS Bank must normally be submitted by midnight Central European Time (CET) on the day before settlement. Each CLS Bank settlement member holds an account at CLS Bank that is divided into subaccounts for each currency that the settlement member settles. Beginning at 7 am CET on settlement day, CLS Bank settles instructions individually on the members' accounts by simultaneously debiting the subaccount of the currency being sold and crediting the subaccount of the currency being bought. These debits and credits are final upon execution of the transfers on the books of CLS Bank. Over the course of the day, as instructions are settled, settlement members accumulate net debit balances in currencies where they and their customers are net sellers and net credit balances in those where they and their customers are net purchasers.

Members must submit payments to CLS Bank to provide funds in the correct currencies to cover projected net debit positions. They can do so by making a single payment for the full amount at 8 am CET or a series of payments in hourly instalments. CLS Bank makes payouts throughout the settlement day to members in currencies in which they have a net credit position, subject to the constraint that the sum of all currency balances (positive and negative) in a member's account, converted into US dollars, is not negative. Payouts are made according to an algorithm that, among other things, accords priority to members and currencies with the highest balances.

To execute payins and payouts from CLS Bank's central bank accounts, settlement members and CLS Bank utilise each central bank's respective RTGS system to transfer funds. In normal circumstances, settlement members will have zero balances in their CLS Bank accounts at the end of each day, and CLS Bank will have zero balances in its central bank accounts at the end of each day.

4.2 Risk management

CLS Bank complies with the Federal Reserve Board's Policy Statement on Payments System Risk, which incorporates the minimum standards found in the Report of the Committee on Interbank Netting

Schemes of the Central Banks of the Group of Ten Countries. CLS Bank does have certain residual liquidity, credit and operational risks, which must be viewed in the context of the overall risk reduction CLS Bank achieves in foreign exchange settlement. These risks are managed by standard risk management tools, including membership requirements, account position limits, haircuts on positions, committed backup facilities and loss-sharing arrangements.

CLS Bank does not guarantee that all instructions submitted will be accepted for settlement. As the CLS system works its way through the queue of payment instructions waiting to be settled, only instructions that pass all of CLS Bank's risk controls will be settled through the system. Instructions remaining in the queue at the end of settlement period are returned to the sender.

CLS Bank imposes aggregate short position limits on account balances that are member specific and are determined by an assessment of a member's credit, liquidity and operational capabilities. CLS Bank also imposes currency-specific short position limits on account balances whose levels are directly related to CLS Bank's committed liquidity facilities in that currency. The CLS system design ensures access to sufficient liquidity from contracted liquidity providers in the event of a failure to pay required amounts by any single member, even if the member also serves as one of the liquidity providers. CLS Bank could incur losses in the unlikely event that a member fails to make a required payment to CLS Bank and exchange rate movements exceed the haircuts CLS Bank has built into the system to guard against risk from extreme exchange rate movements. In such cases, CLS Bank would employ its loss-sharing arrangement.

5. Euroclear

5.1 Institutional and legal aspects

5.1.1 The Euroclear System

The Euroclear System is operated by Euroclear Bank SA, a Belgian credit institution with its registered office in Brussels. From its creation in 1968 until the end of 2000, the Euroclear System was operated by the New York State bank Morgan Guaranty Trust Company of New York (MGT), via the Belgian branch of that establishment, which had a branch of activities ("Euroclear Operations Centre") specially dedicated to the operation of the Euroclear System. MGT transferred this branch of activities to Euroclear Bank, a new Belgian credit institution that was set up in 2000 for the specific purpose of operating the Euroclear System. Euroclear has developed a non-exclusive partnership with Euronext (resulting from the merger of the stock exchanges of Paris, Amsterdam and Brussels), which enabled Euroclear in 2001 to acquire 100% of the capital of Sicovam, the French CSD and operator of the settlement system Relit and RGV, and in 2002 100% of the capital of Necigef, the Dutch CSD. On this occasion, Euroclear also took a 20% stake in the capital of Clearnet, the French credit institution responsible for the clearing of Euronext transactions, and in 2004 Euroclear will acquire most of the settlement and custody business of CIK, the Belgian CSD. Since December 2000, Euroclear has also assumed responsibility for the settlement of Irish government bonds (Gilts) following the decision of the Irish government and the Central Bank of Ireland to delegate this activity to Euroclear.

In September 2002, Euroclear Bank acquired 100% of the capital of CRESTCo, the British CSD which operates the real-time settlement systems settling UK, Irish and international securities through the CREST system, and money market instruments through the Central Money Markets Office (CMO). More details on the role of Euroclear Bank in the ongoing consolidation process in the European capital markets are given in the euro area chapter of this publication.

Euroclear Bank provides both ICSD and securities settlement services, including new issues distribution. In addition, it provides other services such as custody, securities lending and money transfer. Acting as a limited purpose bank, it also provides the system participants with the banking services directly bound to the settlement activity, including credit, securities lending and borrowing and collateral management services.

In 2001, the Euroclear Group had a turnover exceeding EUR 130 trillion and settled more than 161 million transactions (pre-netted). The total value of securities held in custody was almost

EUR 8,000 billion. There are over 208,000 different issues of securities accepted in the Euroclear System issued by entities from over 110 different countries.

5.1.2 Oversight and prudential supervision

Incorporated in Belgium, Euroclear Bank is subject to the supervision of the Belgian Banking and Finance Commission (BFC). In accordance with Article 8 of its Organic Law, the National Bank of Belgium (NBB) is in charge of the oversight of the Euroclear System. Supervisors and overseers work in close cooperation in the implementation of their respective responsibilities at Euroclear Bank. Euroclear plc (see below) is also authorised as a service company by the Financial Services Authority in the United Kingdom.

As a consequence of the ongoing consolidation process, a cooperative oversight framework based on Memoranda of Understanding (MoU) between interested authorities was created. The international cooperation, which is based on the lead oversight and lead supervision principle, currently involves relevant authorities from France, the Netherlands and Ireland. The cooperation agreements aim at allowing each authority to implement its own competencies, promote the efficiency of the controls through a homogeneous approach and streamline the requirements to Euroclear avoiding redundancies.

5.1.3 Governance

Euroclear is market-owned and market-governed. Euroclear Group reshaped its corporate structure in 2000 and 2001, transforming the Belgian company Euroclear Clearance System Société Coopérative into Euroclear Bank SA/NV, which now operates the Euroclear System and provides the services previously contracted to Morgan Guaranty Trust Company of New York, Brussels branch. Euroclear Bank is owned by Euroclear plc, a company organised under the laws of England and Wales (owned by market participants).

Both Euroclear plc and Euroclear Bank have independent Boards of Directors. Composed of representatives of Euroclear users (major securities market actors), and of former shareholders of merged companies (Euroclear France and CRESTCo), the Euroclear plc Board makes the strategic decisions for the group. It decides in particular on the strategic investments and on joint ventures and alliances. As shareholders' voting rights are limited to 5%, widespread user governance of the Euroclear System will be sustained. The Board is assisted by several committees comprising Non-Executive Directors.

The Euroclear Bank Board is composed of 18 Directors, 12 of whom are Non-Executive Directors and are also members of the Euroclear plc Board. The six Executive Directors represent the Bank's Management Committee. The Euroclear Bank Board sets the policies and objectives of the Bank, ensures their implementation by the Management Committee and reviews its performance. These policies include among others pricing, risk management and membership admission.

5.1.4 Participants

The Euroclear System currently has about 2,000 participants from more than 80 different countries, the vast majority of which are banks, broker-dealers and other institutions professionally engaged in managing new issues of securities, market-making, trading or holding the wide variety of securities accepted by the System. Applicants must meet four criteria to be admitted:

- adequate financial resources;
- technological ability to use the Euroclear System;
- need to use the Euroclear System;
- sound reputation in the market.

In addition, internal anti-money laundering measures of the applicant institution are considered prior to any admission.

5.1.5 Legal basis

Securities transfers through the Euroclear System are based on contractual arrangements supported by a specific statutory basis. Euroclear services are offered to the participants pursuant to the Terms and Conditions Governing the Use of Euroclear, as well as the Operating Procedures of the Euroclear System. Those terms and conditions include right of setoff and right of retention on the participants' assets deposited in the Euroclear System. The rules of the Euroclear System, which are governed by Belgian law, explicitly refer to the provisions of Royal Decree (RD) no 62 dated 10 November 1967 facilitating the circulation of securities, as amended. The RD governs the deposit, transfer and pledge of securities held on a fungible basis. Banking services offered to the participants by Euroclear Bank (eg credit, collateral management and treasury services) are governed by separate contracts. The credit contracts organising the limited purpose of the credit lines as well as the related collateral arrangements also fall within this contractual framework.

The legal environment sustaining Euroclear's activities also includes the provisions of the Law dated 28 April 1999, which implements the EU Settlement Finality Directive 98/26/EC into the Belgian legal framework, Euroclear having been officially designated as a system falling under the provisions of this Law. This Law addresses more specifically the issues related to the contractual irrevocability of transfer orders, the exclusion of the "zero hour" rule and the upholding of the enforceability of collateral arrangements.

5.1.6 Asset protection

The contractual and legal protections cover different types of risk, in particular by preventing the securities held by the participants from becoming part of the assets of the custodian or being attached by creditors of custodians or of participants.

RD no 62 organises the co-ownership right of the participants in the book-entry pool of fungible securities credited to their account with Euroclear ("interest in securities"). More precisely, a participant has direct co-ownership rights, not over specific securities, but over all securities of the same type held in the Euroclear System on a fungible basis on behalf of all participants having a position in the relevant type of securities. As a result, each Euroclear participant has the enforceable right against Euroclear Bank to "revindicate" (obtain the return in kind) the same amount and category of securities that is standing to the credit of its Euroclear Securities Clearance Account, even in case of failure or insolvency of Euroclear Bank. Furthermore, if there were a shortage in the availability of securities to participants, securities of the same kind that are separately owned by Euroclear Bank would be taken out of its estate to be distributed to participants. Thus, Euroclear Bank has no ownership interest in securities held in the Euroclear System and securities held in the Euroclear System never become part of the estate of Euroclear Bank.

Securities subdeposited abroad by Euroclear Bank as operator of the Euroclear System with a custodian or an SSS have to be held in an identifiable and segregated fashion in order to ensure that the depository does not acquire any ownership right over the securities. Formal legal opinions under the laws of 32 countries where assets are subdeposited confirm that the securities would not be part of the general assets of the depository or the local clearance system and that those assets should not be subject to successful attachment by the creditors of those entities. This protection against the depository's failure complements the protection that Euroclear participants have under Belgian law for their securities held in the Euroclear System against the risk of bankruptcy of Euroclear Bank.

If securities held in the system were lost as a result of Euroclear's negligence, Euroclear would be liable towards the participants that have suffered a loss caused by its negligence. Euroclear does not, however, accept liability for the negligence or wilful misconduct of third parties, including subdepositories. Under the loss-sharing provision in the Terms and Conditions, the loss of securities caused by any event alien to any negligence on the part of Euroclear would be shared among the participants holding a position in the particular security issue in the Euroclear System. This loss-sharing mechanism has to date never had to be invoked. There are a number of procedures, controls and recourses in place making the materialisation of such a loss for the participants actually highly unlikely. Euroclear Bank is also required to take all such steps as it shall reasonably deem appropriate (including the bringing of legal proceedings) to effect a recovery of any securities loss on behalf of affected participants. In addition, subdepositories as well as Euroclear itself maintain comprehensive insurance coverage that may be available to cover potential related damages.

5.1.7 Collateral protection

Banking services offered to the participants in connection with the use of the Euroclear System (eg credit, treasury services, collateral management services) are governed by separate contracts. As a rule, the credit extended by Euroclear Bank is secured through contractual pledges over assets held in participants' accounts with Euroclear.

In addition, Article 31 of the Belgian Law of 2 August 2002 on the supervision of financial markets provides for a statutory lien in favour of the Euroclear System operator. Applicable to participants' assets (consisting of the balance of all securities in securities clearance accounts, and the balance of all cash in cash accounts) held in the Euroclear System (with the exception of assets held for customers and identified as such), Article 31 permits the recovery of all debts to the operator related to securities clearance and settlement activity, as well as the immediate realisation of securities and cash, and the recovery of loaned securities.

Euroclear has obtained several legal opinions from legal counsel under the laws of more than 42 countries representing the countries of incorporation of participants with whom Euroclear has most of its exposures confirming that under the conflict of laws rules of those countries, Belgian law should govern the validity and enforceability of Euroclear's security interest in the collateral and that underlying securities would not be subject to any successful attachment, levy, garnishment or other similar judicial procedure or other encumbrance by or in favour of any adverse claimant.

In this respect it is also important to note that Euroclear is a designated system for the purposes of the application of the Settlement Finality Directive (in particular Article 9) and of implementing national legislation.

5.2 Operational aspects

5.2.1 Types of transactions handled

Over 190,000 national and international securities are accepted in the System, covering a broad range of internationally traded fixed and floating rate debt instruments, convertibles, warrants and equities. This includes domestic debt instruments, short- and medium-term instruments, equities and equity-linked instruments as well as international bonds from the major markets of Europe, Asia-Pacific, Africa and the Americas.

Euroclear participants can confirm, clear and settle trades by book-entry in more than 40 settlement currencies on a simultaneous DVP basis.

5.2.2 Operating hours

The Euroclear Overnight Securities Settlement Process (overnight process) includes two overnight securities settlement processings which take place before settlement date S (from 22:00 (S-1) until 23:30 (S-1) and from 01:00 (S) until 02:30 (S)). The overnight process is followed by early morning cash reporting which enables participants to manage their cash positions during the day. In addition to the overnight processings, since September 2000 a real-time settlement has been running each business day between 04:00 and 18:00.

5.2.3 Settlement procedures

About 90% of the transactions processed in the systems are settled in the overnight process. Settlement efficiency exceeds 99%. After each securities settlement processing, Euroclear provides participants with a report of settled and unsettled securities transactions and, at the beginning of each business day, with a report of positions resulting from the overnight processing. Settlement is effected trade by trade, with each specific instruction attempted independently according to its priority order. The number of transactions successfully settled is optimised through dynamic recycling of securities and cash positions throughout the securities settlement processing. In order to enable participants to settle as many matched transactions as possible, participants may specify the priority that controls the order in which their instructions are processed. They may also segregate or link instructions as back-to-back settlements.

Real-time settlement is possible for internal settlement and most cross-border trades. It allows for, upon receipt of the instruction from the participant, both the recycling of previously unmatched or unsettled transactions and the processing of new instructions for same day settlement. All instructions for real-time settlement which are not settled at the end of the process are automatically recycled for settlement in the next batch process but not vice versa.

5.2.4 Delivery versus payment

The Euroclear System achieves DVP by “gross simultaneous settlement of securities and funds transfer” (BIS “Model 1” classification). The system is based on the concept of book-entry settlement. 75% of the Euroclear turnover settles on its own books, 12.5% on the “Bridge” with Clearstream Banking Luxembourg (CBL) and 12.5% settles externally.

5.2.5 Internal settlement

Transactions between Euroclear participants are settled on a DVP basis on the books of Euroclear. On the settlement date, securities are transferred by book-entry from the securities account of the seller to the securities account of the buyer, provided that settlement conditions are met. Simultaneously, cash is transferred from the account of the buyer to the account of the seller. Securities and cash transfers between buyer and seller accounts are final and irrevocable upon settlement. Euroclear has relationships, with respect to cash, with cash correspondent banks in about 43 countries. They provide the link between Euroclear Bank and the national cash payment system(s) in the country of the currency.

Since November 2001, Euroclear Bank has also offered its participants the possibility to settle transactions in central bank money (CeBM) during the real-time process. Euroclear’s CeBM settlement service supports DVP settlement (Model 1), using securities deposited in the Euroclear System and cash deposited in the NBB. Settlement in CeBM is offered exclusively in euros. No credit facilities are offered on the CeBM cash account. Euroclear operates this account.

5.2.6 Cross-system settlement

“Bridge” settlements

Participants can receive securities from or deliver them to a Clearstream member over the electronic Bridge with Clearstream. The linkage with Clearstream allows transfer of international securities (ie eurobonds) and of domestic securities that are eligible in both systems. Transfers are either against payment or free of payment. The settlement timing is the same as for internal settlements within the Euroclear System. In Clearstream as in Euroclear, there are several overnight processings before each settlement date. After each Euroclear or Clearstream processing, there is an electronic transmission of files to the other system.

Receipts of securities from Clearstream are processed in the Euroclear overnight processing after receipt of Clearstream’s proposed deliveries to Euroclear participants. Euroclear is informed of these proposed deliveries after completion of the Clearstream processing before the relevant Euroclear processing. After each overnight processing, Euroclear informs Clearstream of the acceptance or refusal of each proposed delivery. The receipt becomes final and irrevocable when Clearstream receives the acceptance feedback from Euroclear. If a receipt from Clearstream is accepted, securities are credited and, if the receipt is against payment, cash is debited as a result of the overnight processing. If the receipt is refused, eg because the participant has insufficient cash available, the participant’s instruction to receive is included in the following overnight processings until settled or cancelled by the participant. After each overnight processing, Euroclear also informs Clearstream of proposed deliveries to Clearstream members which will be successfully or not included in the following Clearstream processing; a proposed delivery from Clearstream which fails to settle in the first Euroclear overnight processing may be proposed again by Clearstream for the second overnight processing.

Settlements with local market participants

To provide settlement of trades with local counterparties, links have been set up with a number of local CSDs. These links allow settlement of external transactions in a wide range of domestic securities, eg,

government debt, corporate debt, equities and equity-linked (such as warrants). Trades between a Euroclear participant and a counterparty in a domestic market are settled either directly or indirectly via an agent with domestic CSDs in more than 30 markets in Europe (eg Belgium, France, Germany, Italy, the Netherlands, Spain, Sweden), North and South America (eg Argentina, Canada, Mexico, the United States), Asia-Pacific (eg Australia, Hong Kong, Japan, Singapore) and Africa (Republic of South Africa).

Costs and risks involved in the settlement between Euroclear participants and local market participants are heavily influenced by local market practices. Trades settling via domestic market links settle on a DVP basis only if DVP is provided in the local market. In the same way, settlement in the Euroclear System becomes final and irrevocable in line with the rules of the domestic market. As a rule, Euroclear Bank credits securities to participants only if it has actually received the securities for the account of such participants. Availability of securities is only given after this receipt is final and therefore any risk of unwind of the receipt has been eliminated.

5.2.7 Custody function

The securities deposited by the participants in the Euroclear System are typically subdeposited with a network of more than 70 custodians (called depositories), who are banks, central banks or SSSs generally located in the country of issuance or liquidity of the security, covering 32 markets. Some of those custodians in turn may subdeposit the securities with their own subcustodians, typically SSSs. International securities (such as eurobonds) are typically subdeposited with banks that act as custodians for Euroclear Bank or as common depositories for Euroclear Bank and Clearstream Banking. These custodians may be authorised to subdeposit the securities as necessary, generally with their own offices or subsidiaries in other locations.

Securities deposited by participants in the Euroclear System are deposited with Euroclear Bank, as operator of the Euroclear System. Securities deposited in this way with Euroclear Bank may be subdeposited with various depositories throughout the world. All Euroclear securities held by a depository or subdepositories are credited to segregated custody accounts (in the name of Euroclear Bank) and labelled or otherwise appropriately identified as being held for Euroclear Bank as operator of the Euroclear System. For securities held in physical form in the vaults of the custodian, the Depositary Agreement also requires that the custodian segregates physically the securities held for Euroclear Bank from any security of the same issue that it would hold for its own account or for any other client.

Euroclear Bank also enters into a Depositary Agreement with each depository which, as a rule, confirms, among other things, that it has no ownership interest in securities it holds for Euroclear Bank and that such securities are freely transferable, except (in certain instances) for a limited right of retention for safekeeping fees charged by the depository.

Securities deposited in the Euroclear System may be in either physical, registered or in dematerialised form and are held on a fungible basis. Euroclear Bank offers a large number of custody services facilitating the exercise of securities holders' rights and corporate actions, including eg tax services, proxy voting, information on corporate events and processing for collection of income and redemption proceeds, market claims, and exercise of subscription rights.

5.2.8 Securities lending and borrowing

Euroclear Bank offers a securities lending and borrowing programme which is fully integrated into its overnight settlement process. As a general rule, all securities accepted by the Euroclear System are eligible for securities lending and borrowing except those bound by liquidity, fiscal or legal restrictions. Standard borrowings are allocated whenever a borrower has insufficient securities in its account to make a delivery, provided sufficient securities are available from lending. Borrowings are reimbursed on the first overnight settlement process where securities are available in the borrower's account. In the programme, all securities made available by lenders are aggregated in a lending pool. Securities are then distributed to borrowers and loans are allocated among lenders according to standard procedures. Through the intermediation of Euroclear Bank, a borrower's name is never revealed to the lender and vice versa. This Euroclear "screen" between borrowers and lenders ensures confidentiality of participants' positions. Euroclear Bank guarantees to each lender the return of lent securities or their cash equivalent in the case of borrower default as well as the payment of the lending fees.

Euroclear Bank also guarantees income and redemption proceeds and other entitlements on lent securities. The credit extended in the framework of this facility is fully collateralised.

5.2.9 Collateral management

Euroclear provides its participants with integrated collateral management services facilitating collateralisation of all types of exposures from a single pool of collateral. Collateral services offered in the Euroclear System include marking to market, substitutions, margin calls and other monitoring associated with collateralised securities. Integrated collateral management supports standard market agreements for repos, securities lending, derivatives support and secured loans. A service agreement documenting these services must be executed between the collateral giver, the collateral taker and Euroclear, acting as collateral management service agent. A specific triparty agreement is used for each collateral management product. Autoselect, the collateral management securities substitution and selection module, runs eight times a day during the real-time settlement process.

5.2.10 New issues

New issues of internationally traded securities, including many international equity distributions, are closed and distributed on a same-day against-payment basis. Approximately 75% of all primary distributions of securities issued in the euromarkets are facilitated through the Euroclear System. Distribution of securities either against payment or free of payment centralises control of allotment payments from participants to the lead manager. Assistance in connection with the administration of the exchange of global certificates for definitive certificates is also provided.

5.2.11 TradeGO

Euroclear offered a clearing service to the market through a fully owned subsidiary called TradeGO, whose role was to act as the Trade Guarantee Organisation (TGO), ie as central counterparty for cash transactions traded on COREDEAL, the electronic order-driven exchange for internationally traded debt instruments of the International Securities Market Association (ISMA). TradeGO has stopped its activities since November 2002.

5.3 Risk management

5.3.1 Settlement risk

Settlement risk refers to the risk of losing an asset (securities or cash) as a result of a delivery of such asset prior to the receipt of the appropriate countervalue from the counterparty.

Euroclear is a DVP1 settlement system that holds both cash and securities accounts on its books. Intraday finality for the batch processing or immediate finality for the real-time process is achieved through simultaneous book-entry on the respective cash and securities accounts which eliminates the settlement risk between the two parties to a trade and precludes the possibility of unwinding transactions in case one of the parties defaults.

Settlement of internal transactions (between two Euroclear participants on Euroclear's books or in central bank money) is final upon execution and generation of records (ie at the completion of each of the settlement processes). Therefore, the simultaneous transfer of securities of securities and transfer of cash are final at such time.

Settlement over the Bridge with Clearstream is also on a Model 1 DVP basis since there are simultaneous and final transfers of cash and securities accounts each holds with the other after each exchange. Transfers by Euroclear are final upon the receipt of an acceptance feedback from Clearstream (and vice versa for receipts by Euroclear over the Bridge).

External trades settling through domestic market links established by Euroclear effectively settle in the local market. They become final in accordance with the local market rules on finality. Euroclear will not, as a rule, credit a participant's account with cash or securities before receipt by Euroclear of the cash or securities in its local account with finality. Therefore Euroclear and its participants will not be subject to settlement risk.

5.3.2 Credit risk

Euroclear participants can arrange flexible credit facilities with Euroclear Bank to support the securities settlement process. Credit risk refers to the risk that Euroclear could experience a loss due to the failure of a counterparty to reimburse extended credit. In order to minimise this risk, Euroclear imposes credit limits and collateralisation requirements on the participants. The overwhelming majority of the credit facilities for Euroclear participants are fully secured.

Credit facilities granted to participants are uncommitted and are only intended for intraday cash borrowing and commitments in connection with local market settlement and for securities borrowing.

Euroclear grants credit to its participants on a temporary basis (operating exposure). The operating exposure in Euroclear can typically be characterised as a form of intraday credit usage, the duration of the operating exposure being generally less than 24 hours. It is only under unforeseen circumstances, primarily as a result of settlement failures, that part of the operating exposure may not get confirmed in time and, therefore, becomes a real end-of-day overdraft that is retained on the books of the bank.

5.3.3 Market and liquidity risk

Market risk refers to the risk that the value of Euroclear investments will fall, causing a deterioration of the bank's capital structure. Market risk arises because of market movements and price changes impacting the bank's investment securities.

Liquidity risk refers to the risk that Euroclear will not be able to meet its cash and payment obligations as they fall due. It results from the fact that cash flows in the bank's treasury operations do not match its liabilities to customers. Beside its usual liquidity supply sources like the interbank market or uncommitted credit facilities with business counterparties, Euroclear maintains a liquidity contingency plan on a permanent basis to provide extra sources of funds in case the normal supply is not sufficient. It should also be noted that Euroclear's investment activities are bound by strict rules designed to maintain the liquidity available.

5.3.4 Operational reliability

Euroclear operates a complex computer and telecommunications environment composed of various internally developed and third-party software application systems installed on both mainframe and distributed computing environments. Communication between participants and Euroclear may be by the Euroclear's proprietary EUCLID system or by the private SWIFT network. Both systems provide security and integrity over the instructions by requiring the customer to perform user identification and authentication procedures. Access to Euroclear services is simplified through standardised instructions and reports. Backup facilities are available. Disaster recovery and business continuity plans are in place in order to ensure the continuity of the services in the event of serious malfunctions at the production centre. The contingency infrastructure and procedures are subject to regular testing and maintenance. The business continuity plan is being reviewed to ensure harmonisation at Euroclear Group level and in the light of the conclusions drawn from the events of 11 September 2001.

6. Clearstream

6.1 Introduction: the corporate structure of Clearstream Banking Luxembourg SA

Cedel was founded on 28 September 1970 to provide for the clearing, settlement, custody and management of securities and precious metals.

On 1 January 1995, with the intention of increasing the company's effectiveness, Cedel became Cedel Bank (and later Cedelbank) in order to take advantage of capital adequacy regulations. At the same time, Cedel International was established as the parent company of the Cedel Group.

In May 1999, Cedel International and Deutsche Börse Clearing AG decided to merge. The two entities then formed Clearstream International, of which 50% is owned by Cedel International Holding (itself held by international financial institutions), the other 50% being held by the Deutsche Börse AG.

Clearstream International is the parent company of Clearstream Banking Luxembourg SA (CBL), Clearstream Banking Frankfurt AG (CBF) and Clearstream Services (located in Luxembourg). Clearstream International officially started operations in January 2000 and operates under Luxembourg law. CBF has taken over the business of the former Deutsche Börse Clearing and continues to operate under German law as a bank and as the German CSD, while CBL has taken over from Cedelbank and operates as the Luxembourg CSD.

The Boards of Directors, the management, the corporate functions, IT, and the sales and marketing functions have been integrated since January 2000, whereas the network management is still in the process of being integrated. The first key step was the migration of CBF's business in international securities onto the Creation platform (operated by CBL).

In July 2002, Deutsche Börse AG acquired Cedel's 50 % stake in Clearstream International.

Clearstream International is represented by offices in London, New York, Hong Kong, Dubai and São Paulo.

6.2 Present situation, prudential supervision and oversight

CBL is a duly licensed credit institution incorporated under Luxembourg law and is thus authorised to carry out the complete range of banking activities. However, CBL's by-laws stipulate that its core business consists in acting as a depository and providing clearing and settlement services in respect of the securities which have been or are to be deposited with CBL. Consequently, the other banking activities of CBL are limited to facilitating its settlement and clearing services.

As a licensed credit institution, CBL is subject to supervision by the "Commission de Supervision du Secteur Financier" (CSSF).

Following the transposition of the EC Settlement Finality Directive into Luxembourg law, the European Commission has been notified of the SSS status of CBL, which is thus covered by the Directive. As such, CBL is overseen by the Central Bank of Luxembourg.

6.3 Participants in the system

Membership is open essentially to banks, broker-dealers, investment banks, central banks and CSDs. New members have to meet certain criteria when applying for membership and their credit standings are assessed on an ongoing basis. Criteria against which membership is assessed include the institution's net worth, its legal structure, its management reputation and the underlying country risk. Today, CBL maintains customer relationships with all major financial institutions from over 100 countries.

6.4 Types of transaction handled

Over 230,000 securities are currently accepted by CBL for clearance and settlement. They include fixed income bonds such as eurobonds, foreign bonds, domestic bonds and convertibles, money market instruments (including short- and medium-term notes, commercial paper and certificates of deposit), as well as equities, depository receipts, units in investment funds, warrants and precious metals. CBL operates a multicurrency system, which currently covers 43 currencies.

6.5 Transaction processing environment

Communication media available to customers to send settlement instructions include the SWIFT network, the CBL communication system Cedcom, and telex.

Once an instruction is received by CBL, it is checked automatically against validation criteria, such as the International Securities Identification Number (ISIN), to ensure that the instruction was input correctly. After the validation, the instruction has to be matched with the instruction from the counterparty. It is then considered to be a valid settlement order. If the instruction is not validated, the customer is informed immediately so that the instruction can be rectified and a new instruction sent before processing deadlines.

Reports of settled and unsettled trades are available on an hourly basis throughout the day. Full reporting, including information on cash and securities balances and total holdings, is provided to customers after both the overnight processing and the daytime continuous settlement processing.

6.6 Settlement procedures

CBL has developed and implemented a book-entry IT system through which cash and securities are exchanged simultaneously. This DVP mechanism is intended to eliminate the principal risk. Where customers cannot deliver securities or cash at the designated time, CBL offers a comprehensive securities lending programme and provides cash lending facilities. These support mechanisms are closely monitored via dedicated cash and collateral management services.

6.6.1 Overnight and daytime processing

Transactions in CBL are processed during the CBL overnight processing and during the daytime continuous settlement processing. All valid instructions received by 7.45 pm (CET) are settled overnight for value the following day. Continuous settlement occurs on a same day basis and takes place during the day for all valid instructions received by 4 pm (CET). Transactions failing during the overnight processing can be reconsidered for settlement in the 10 subsequent continuous settlement processing cycles.

6.6.2 Bridge settlements

The original Bridge Agreement between CBL and Euroclear was concluded in 1993. Trades with counterparties in Euroclear are settled overnight via the electronic Bridge on a DVP or FOP basis. The Bridge allows transactions to be settled between customers of CBL and Euroclear by means of crediting or debiting the account held by each clearing and settlement system with each other. In November 2000, Clearstream International and Euroclear signed an agreement to supplement the existing overnight Bridge with a new daytime transaction processing feature between both systems. This daytime Bridge for multiple intraday exchanges of securities and cash deliveries operates manually for the time being. Complete automation is expected in 2004. The main benefits of this new procedure, namely increased efficiency, greater liquidity of customer transactions and the possibility of distributing new issues on a same day basis, will only be fully effective after the automation of the daytime bridge.

6.6.3 Internal transactions

Securities held in the CBL system and traded between CBL counterparties are settled in accordance with the counterparties' instructions on a DVP or FOP basis through the simultaneous book-entry transfer of securities and cash between the accounts of the buyer and the seller.

6.6.4 External transactions

Trades with counterparties on other domestic markets are settled through one of CBL's depositories, either a national CSD or a bank, depending on the market.

6.6.5 The Creation project

The Creation settlement system is a new central application enabling CBL to offer customers a rapid daytime settlement service. In addition to features such as eligibility checking, settlement and technical netting, provision checking and transaction booking, the new Creation system includes functions such as automatic reimbursement of securities lending, automatic substitution of collateral, automatic collateral top-up and return of specific collateral pledged, and settlement of securities financing.

Based on the principle of continuous intraday DVP settlement, the Creation IT platform improves liquidity for customers through technical netting facilities.

The Creation system is now used for the international securities business for both intraday and overnight processing.

Contrary to initial plans, CBF will continue to operate the Cascade system while Creation will be used for CBL and the international securities business of CBF.

6.7 Risk management

6.7.1 Default of a counterparty

From a legal point of view, the default of a participant in CBL does not have an impact on the property rights of its counterparties as regards securities transactions settled prior to the time of the court order. With regard to securities transferred to a counterparty under a pledge agreement, such collateral may, from the moment the debtor is in default, be used without written notice to meet any of its obligations. In the case of a repo agreement, the default of a participant does not adversely affect the property rights of the owner of the securities. Since settlement of transactions can only occur if the necessary cash and securities provisions are available, customers of CBL are not exposed to the risk of default by another customer.

6.7.2 Securities and cash lending facilities

CBL manages three different types of securities lending programmes: Automated Securities Lending (ASL), Disclosed Automated Securities Lending, and Strategic Securities Lending (SSL). The mechanisms are optional and are intended to avoid possible settlement failures by customers. In all these programmes, CBL never acts as principal, but merely as an intermediary between the lenders and the borrowers.

In addition, CBL offers two types of credit facilities against collateral: the Unconfirmed Funds Facility (UFF) and the Technical Overdraft Facility (TOF).

Unsecured credit lines are granted to top names in the financial sector only. Prior to opening unsecured credit lines, CBL analyses the customer's creditworthiness, which is reviewed and approved by the CBL Internal Credit Group. The case is then presented to and ratified by the CBL Executive Board. The use of such credit lines is monitored on a daily basis, with particular emphasis on identifying potential large exposures.

6.7.3 Responsibility of CBL

In the absence of negligence or wilful misconduct on its part, CBL is not liable to customers for any loss, claim, liability, expense or damage arising from any action taken or not taken by CBL. In addition, CBL has taken out insurance policies covering crime and depository indemnity up to USD 75 million and covering risks of physical loss or damage up to USD 500 million.

