ANNEX 1

GLOSSARY

Agency relationship: a contractual relationship in which one party, the agent, acts on behalf of another party, the principal. The agent may execute trades for the principal but is not responsible for performance by the principal.

Basis risk: the risk of changes in the *basis*, that is, the difference between the price of a futures or forward contract and the price of the underlying asset.

Cash clearing: a method for clearing futures contracts in which positions are periodically marked to market and the resulting obligations are satisfied by cash payments, known as variation margin. See non-cash clearing and variation margin.

Central counterparty: an entity that is the buyer to every seller and seller to every buyer of a specified set of contracts, for example those executed on a particular exchange or exchanges.

Clearing link: an arrangement in which the same contract is traded on exchanges affiliated with two clearing houses but all positions are transferred daily to a single clearing house where they are carried until expiration or offset. See mutual offset system.

Clearing house: a department of an exchange or a separate legal entity that provides a range of services related to the clearance and settlement of trades on the exchange and the management of risks associated with the resulting contracts. A clearing house is often central counterparty to all trades on the exchange, that is, the buyer to every seller and the seller to every buyer.

Clearing member: a member of a clearing house. All trades must be settled through a clearing member. A *direct* clearing member is able to settle only its own obligations. A *general* clearing member is able to settle its own obligations as well as those of clients. Variations of these two types of clearing member may also exist.

Client: a party that is not a member of the clearing house and must settle through a clearing member. Also known as customer.

Close-out: the process of offsetting existing contracts. Close-out may be used by the clearing house to prevent further losses from positions carried by an entity that has defaulted.

Credit risk: the risk that a counterparty (such as a clearing member) will not settle an obligation for full value, either when due or at any time thereafter. Credit risk includes replacement cost risk and principal risk.

Custody risk: the risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent action of the custodian or of a sub-custodian.

Default: failure to satisfy an obligation on time. More generally, a clearing house may declare a member in default in a variety of circumstances, including failure to satisfy obligations on time, insolvency, suspension of trading privileges on an exchange for which the clearing house provides services, or other events that the clearing house deems to have had a material adverse effect on the member's capacity to meet its obligations.

Deferred net settlement system: a system that effects the settlement of obligations or transfers between or among counterparties on a net basis at one or more discrete, pre-specified settlement times during the processing day.

Delivery versus payment: a link between a securities transfer system and a funds transfer system that ensures that delivery occurs if, and only if, payment occurs.

Derivative: an instrument whose value is determined by the value of an underlying asset.

Endogenous default: a default by a clearing member that results from losses on house or client positions carried by the clearing member at the clearing house rather than from losses from some other (exogenous) source.

Exchange member: a member of an exchange with certain trading privileges. An exchange member may not necessarily be a member of the exchange's clearing house.

Final: irrevocable and unconditional.

Forward contract: a contract that obligates one party to buy, and the other to sell, an underlying asset at a specific price and date in the future.

Futures contract: a standardised forward contract traded on an exchange.

Futures-style margining: a method of margining derivatives contracts in which positions are marked to market and current exposures are extinguished through cash payments known as variation margin. When options contracts are margined using a futures-style system, the option premium is gradually paid over the life of the option (through the cumulative variation margin payments) and fully paid once the option has been exercised. See options-style margining.

Gross margining: margining system in which the clearing member is required to deposit with the clearing house sufficient initial margin to cover the gross positions of its clients. See net margining.

Haircut: the difference between the market value of a security and its collateral value. The haircut is intended to protect a lender of funds or securities from losses owing to declines in collateral values.

Initial margin: cash or collateral that is deposited with the clearing house to ensure performance on obligations to it. Also known as performance bond and original margin.

Legal risk: the risk of loss because of the unexpected application of a law or regulation or because a contract cannot be enforced.

Liquidity risk: the risk that a counterparty (such as a clearing member) will not settle an obligation for full value when due. Liquidity risk does not imply that a clearing member is insolvent since it may be able to settle its obligations at some unspecified time thereafter.

Margin: see initial margin and variation margin.

Market risk: the risk of losses in on and off-balance-sheet positions arising from movements in market prices.

Marking to market: the revaluation of open positions in financial instruments at current market prices and the calculation of any gains or losses that have occurred since the last valuation. See futures-style margining, options-style margining and variation margin.

Mutual offset system: a link between clearing houses in which positions entered into on one exchange can be, but need not be, transferred to the clearing house of another exchange and vice versa. See clearing link.

Net margining: margining system in which the clearing member is required to deposit with the clearing house sufficient initial margin to cover the net positions of its clients. Clients, however, are typically still obligated to deposit with the clearing member initial margin to cover their own positions. See gross margining.

Non-cash clearing: a method for clearing futures contracts in which positions are periodically marked to market and the resulting obligations are collateralised. See cash clearing.

Omnibus account: a single account for the commingled funds or positions of multiple parties. A clearing member will often maintain an omnibus account at the clearing house for all of its clients. In this case, the clearing member is responsible for maintaining account records for individual clients.

Open-outcry trading: trading that is conducted on the floor of an exchange without any electronic intermediation. See screen-based trading.

Operational risk: the risk of human error or a breakdown of some component of the hardware, software or communications systems that are critical to settlement.

Option contract: a contract that gives the buyer the right, but not the obligation, to either buy or sell an underlying asset, depending on the type of option, by a certain date for a certain price. For this right, the buyer pays the seller a "premium".

Options-style margining: a method of margining derivatives contracts in which positions are marked to market and current exposures are collateralised. When an option contract is margined using such a system, the buyer of the option pays the premium in full at the time of the purchase. The seller of the option receives the premium and collateralises current exposures as they occur. See futures-style margining.

Over the counter: a method of trading that does not involve an exchange. In over-the-counter markets, participants trade directly with each other, typically through telephone or computer links.

Position limit: a restriction on the number of contracts or share of a contract's open interest that a single entity may hold.

Principal risk (or delivery risk): the risk that the seller of a security delivers a security but does not receive payment or that the buyer of a security makes payment but does not receive delivery. In this event, the full principal value of the securities or funds transferred is at risk. See also credit risk.

Principal-to-principal relationship: a contractual relationship in which both parties are acting on their own behalf and are responsible for the performance of any contractual obligations.

Proprietary positions: positions held by a participant on its own behalf (as opposed to positions held for clients).

Real-time gross settlement (RTGS): the continuous settlement of funds or securities transfers individually on an order-by-order basis.

Replacement cost risk: the risk that a counterparty to an outstanding transaction for completion at a future date will fail to perform on the settlement date. The resulting exposure is the cost of replacing, at current market prices, the original transaction. See credit risk.

Screen-based trading: trading conducted through a network of electronic terminals. See open-outcry trading.

Segregation: a method of protecting client assets and positions by holding or accounting for them separately from those of the carrying firm or broker.

Settlement bank: either a central bank or a private bank used to effect money settlements.

Stress testing: the estimation of credit and liquidity exposures that would result from the realisation of extreme price changes.

Substitution: the substitution of one party for another in respect of an obligation. In the context of a futures or options clearing house, the term usually refers to the interposition of the clearing house as buyer to the seller of a contract and seller to the buyer.

Systemic risk: the risk that the failure of one participant in a payment or settlement system, or in financial markets generally, to meet its required obligations when due will cause other participants or financial institutions to be unable to meet their obligations (including settlement obligations in a transfer system) when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of financial markets.

Trade matching: the process of matching trade details (such as number of contracts, contract month and price) submitted by the trade counterparties. The clearing house often guarantees a trade at the time it is successfully matched.

Trade registration: the process by which matched trades are formally recorded on the books of the clearing house. For clearing houses that act as central counterparties, registration may also be the time at which the clearing house substitutes itself as counterparty to the clearing members.

Unwinding (or settlement unwind): a procedure followed in certain payment and settlement systems in which transfers of securities or funds are settled on a net basis, at the end of the processing cycle, with all transfers provisional until all participants have discharged their settlement obligations. If a participant fails to settle, some or all of the provisional transfers involving that participant are deleted from the system and the settlement obligations from the remaining transfers are then recalculated.

Value at risk: an estimate of the upper bound on losses an institution would expect to incur during a given period (for example, one day) for a given confidence level (for example, 95%).

Variation margin: funds that are paid to (or received from) a counterparty (clearing house or clearing member) to settle any losses (gains) that are implied by marking open positions to market. In some markets the term is also used to describe the transfer of collateral to (from) a counterparty to cover an initial margin deficit (surplus) in a non-cash clearing or options-style margining system.

Zero-hour rule: a provision in the insolvency law of some countries whereby the transactions of a closed institution that have taken place after 00:00 on the date the institution is ordered closed may be retroactively rendered ineffective.

ANNEX 2

KEY FEATURES OF SELECTED CLEARING HOUSES IN THE G-10 COUNTRIES

This annex provides summary information on 16 clearing houses in the G-10 countries. For each clearing house, the information is organised into the following tables:

Table 1	General background information
Table 2	Legal relationships and account structure
Table 3	Risk management
Table 4	Money settlements
Table 5	Default procedures

The clearing houses and corresponding page numbers are as follows:

Table 1

Belgium: BELFOX

General background information	
Exchanges cleared for	BELFOX (Belgian Futures and Options Exchange).
Instruments/contracts cleared	Options on Belgian stocks/Belgian stock index. Futures on 3-month Bibor and on notional Belgian government bond (and option on this future). Options on cross rate Belgian francs/US dollars. Future on Belgian stock index. Trading is electronic screen-based.
Legal form and ownership	Department of the exchange.
Regulation/oversight	Exchange (including clearing) is a self-regulatory organisation, second-line supervision by Banking and Finance Commission (Bank Supervisor). Also oversight by Government Commissioner.

Table 2

Belgium: BELFOX

Legal relationships and account structure	
Membership categories/legal relationships between clearing organisation, clearing members and clearing member clients	General clearing member: representing himself and other exchange members. Individual clearing member: only representing himself. Relationship BELFOX/clearing members: principal-to-principal. Relationship clearing members/clients: principal-to-principal. No legal relationship between clearing house and clients.
Account structure of clearing organisation	Segregation of house accounts and client accounts.
Account structure of clearing member	Segregation of own-house accounts, client accounts. House accounts of other exchange members represented by this clearing member, client accounts of other exchange members represented by this clearing member.
Monitoring of account structures	BELFOX monitors this segregation (for instance by having inspections on the spot with clearing members).

Table 3a

Belgium: BELFOX

Risk management	
Membership requirements	Minimum capital requirements (for individual clearing members: BEF 50 million, for a general clearing member: BEF 500 million). Minimum requirements on "qualified capital" (= members' equity and reserves + subordinated loans, less illiquid assets).
Margin requirements	Margin requirements are calculated each day (± 17:00 - 17:30), to be settled next morning before 09:45. Gross margining. Options-style margining for all options.
Acceptable forms of margin	Cash (Belgian francs). Treasury bills, Treasury bonds, selected stocks (all Belgian francs). Immediately callable bank guarantees accepted by BELFOX.
Variation margin	Variation margins (based on mark-to-market) are calculated daily (± 17:00 - 17:30), to be settled next day before 09:45. Intraday margin calls can be made, settlement has to take place within one hour.

Table 3b

Belgium: BELFOX

Risk management	
Clearing house resources	Own capital: BEF 500 million. Credit facility: BEF 125 million. No clearing fund. Assessment authority in the form of the possibility of "invoicing back": liquidation of positions at the exchange at conditions fixed by the clearing house.
Disaster recovery	A new trading system, involving an integrated backup facility will be implemented in the second half of 1997.
Position monitoring	Reporting of trading happens on a real-time basis (electronic trading system). Real-time position monitoring (electronic trading system).
Limits on price movements, trading and concentration	BELFOX can suspend trading in a given contract. Limits on size of exchange member's position in relation to qualified capital (distinction between house accounts/clients' accounts). Limits on concentration by single members/clients.

Table 4

Belgium: BELFOX

Money settlements	
Settlement mechanisms	BELFOX uses a Protected Payments System, involving five settlement banks. Each clearing member has to have an account with one of these banks.
Frequency of settlement	Settlement occurs normally (if there isn't an intraday margin call) once a day, before 09:45 (with respect to positions at the end of the previous day).
Types of funds	Private bank funds, on account with one of the PPS banks.
Finality of funds	Payments are final upon entry in the books of the settlement banks at 09:45. PPS banks guarantee unconditionally crediting BELFOX's accounts (if not, the PPS bank should react before 09:45).

Table 5

Belgium: BELFOX

Default procedures	
Events of default	A clearing member is in default if it fails to meet its obligation to BELFOX on time. Also in a number of other situations, BELFOX can declare a clearing member to be in default.
Treatment of open positions	BELFOX tries to close the own position of a defaulting member (= his "house" position) in a way conforming to market practices. The client positions with a defaulting clearing member are transferred to other members.
Clearing organisation resources to cover loss	Margins and collateral. Own funds. "Invoice back": a liquidation of the positions at the exchange at conditions fixed by the clearing house.
Liquidity resources	Cash funds of the exchange. BEF 125 million credit line. Liquidation of margins (mostly government bonds).

Table 1

Canada: Canadian Derivatives Clearing Corporation (CDCC)[1]

General background information	
Exchanges cleared for	The Montreal Exchange (ME). The Toronto Stock Exchange (TSE). The Vancouver Stock Exchange (VSE). The Toronto Futures Exchange (TFE).
Instruments/contracts cleared	Equity options: – TSE 38 classes, ME 29 classes, VSE 16 classes. Interest rate: – ME 3-month bankers acceptance futures (BAX); – ME 1-month bankers acceptance futures (BAR); – ME options on 3-month BAX (OBX); – ME 5-year Government of Canada bond futures (CGF); – ME 10-year Government of Canada bond futures (CGB); – ME options on the 10-year CGB (OGB). Precious metals: – VSE gold options. Indices: – TFE TSE 35 index futures (TXF); – TFE options on TXF 35 (TXO); – TFE TSE 100 index futures (TOF); – TFE options on TSE 100 (TOP); – TFE TSE 35 index participation units (TIPS). An order-book matching system is used for options trading, while an open-outcry auction system is used for futures trading.
Legal form and ownership	CDCC is a separate legal entity that is jointly owned by the ME, TSE and VSE. It operated under the name Trans Canada Options Inc. from its inception in 1976 until 1st January 1996. At that time, it adopted its new name to better reflect the broad range of products that it clears for the Canadian market. The Corporation operates independently and is governed by an eleven member Board of Directors. The Board is comprised of a representative from each of the three Exchanges, six representatives from member firms, one public director, and CDCC's President and Chief Executive Officer. The Board establishes corporate policies and enacts these policies primarily through CDCC's rules.
Regulation/oversight	The regulation of CDCC, Canadian Exchanges and their members is under the jurisdiction of the Provincial Securities Commissions.

1 As at 31st December 1996.

Table 2

Canada: Canadian Derivatives Clearing Corporation (CDCC)

Legal relationships and account structure	
Membership categories/legal relationships between clearing organisation, clearing members and clearing member clients	Membership is restricted to members of the ME, TSE, VSE and Schedule I banks. As the clearing house for exchange-traded derivative instruments, CDCC ensures the integrity (i.e. the financial soundness) and stability of the Canadian market by acting as guarantor. In other words, if a clearing member were to default on its derivative contracts, all related obligations of that member towards other clearing members would become the responsibility of CDCC.
Account structure of clearing organisation	CDCC maintains one or more client, firm and market maker accounts for each of its clearing members. Each account may contain one or more sub-accounts.
Account structure of clearing member	Not known.
Monitoring of account structures	CDCC has no direct relationship with individual clients and has no responsibility for settlement between a member and its clients.

Table 3a

Canada: Canadian Derivatives Clearing Corporation (CDCC)

Risk management	
Membership requirements	Applicants for clearing membership must: – be a member of one of the exchanges (ME, TSE, TFE, or VSE) or be a Canadian Schedule I chartered bank; – meet minimum capital requirements as set from time to time by that exchange or, in the case of banks, as set by the Office of the Superintendent of Financial Institutions; – be approved by the relevant Provincial Securities Commissions if transacting business for clients; and – satisfy CDCC on standards of operational capability.
Margin requirements	CDCC's risk-based margin system analyses all positions (options, futures, and futures options) held in each sub-account of every member. It then projects a liquidating value for each sub-account, based on multiple projected market moves. Using this projection, CDCC collects margin to cover potential losses in the event that such a liquidation became necessary. Margin deposits must be in the form of cash, Treasury bills, short-term Government debt, letters of credit, bankers' acceptances, and similar highly liquid instruments. Theoretical Intermarket Margin System (TIMS®), first developed by the Options Clearing Corporation has been the sole risk-based margin system employed by CDCC since 1990. CDCC has expanded its risk management system by incorporating the Standard Portfolio Analysis of Risk (SPAN®) system, first developed by the Chicago Mercantile Exchange. With implementation of this system (first quarter 1997), CDCC is in the unique position of being able to margin member positions with either TIMS or SPAN. All settlement payments to CDCC (including daily margin requirements, futures mark to market, option premiums, exercise and tender amounts, etc.) are made at 08:00 (all times are Eastern times) via an irrevocable financial electronic data interchange (FEDI) payment. In addition, during periods of increased market volatility, one or more intraday margin calls are made. Intraday margin calls are payable within one hour.
Acceptable forms of margin	Cash (CAD). Bank letters of credit (face value). Government of Canada bonds/bills (90% face value). Provincial government bonds/bills (90% face value). US Treasury bills (90% face value). Bankers' acceptances (85% face value). Valued securities - revalued daily (50%). All acceptable collateral must be placed either with CDCC or an approved depository. Equities may be pledged through either the Canadian Depository Services (CDS) in Toronto or Depository Trust Company (DTC) in New York. Short equity call option contracts may be covered by the underlying stock pledged at CDS or DTC. Bank letters of credit are limited to 10% of the paid-up capital of Canadian chartered banks with a minimum paid-up capital and reserves of CAD 20 million.
Variation margin	During periods of increased market volatility, one or more intraday margin calls may be made. Intraday margin calls are payable within one hour.

Table 3b

Canada: Canadian Derivatives Clearing Corporation (CDCC)

Risk management	
Clearing house resources	Cash and collateral margin requirements as of 31st December 1996 was CAD 342,353,080. Clearing fund requirements as at 31st December 1996 was CAD 47,581,600.
Disaster recovery	CDCC operates a hot backup system that ensures continued operations should the primary site become unavailable. In an emergency, dial-up circuits would provide for data communications with the Exchanges. CDCC's business recovery plan anticipates re-establishing complete operations in less than two hours.
Position monitoring	The Exchanges establish position limits for each of their products.
Limits on price movements, trading and concentration	The Montreal Exchange and the Toronto Futures Exchange impose price limits on certain futures contracts. The exchanges recognise that price limits constrain the price discovery process and, therefore, exchanges usually allow for expanded price movements under defined circumstances. The Exchanges also impose position limits designed to prevent an investor or group of investors that are acting in concert from disrupting a particular market. In Canada, the TSE, the TFE, the ME and the VSE have coordinated circuit breakers for spot and equity markets, and for equity futures and options markets. These circuit breakers are also coordinated with those implemented in some US exchanges (including the New York Stock Exchange).

Table 4

Canada: Canadian Derivatives Clearing Corporation (CDCC)

Money settlements	
Settlement mechanisms	CDCC operates a single net payment with each payment clearing member in each currency. All settlements are made through an irrevocable financial electronic data interchange (FEDI) system. Daily settlements are made before 08:00. In addition, during periods of increased market volatility, intraday margin calls must be settled within one hour of the call.
Frequency of settlement	All settlements are made through an irrevocable FEDI system. Daily settlements are made before 08:00 on (T+1). In addition, during periods of increased market volatility, intraday margin calls must be settled within one hour of the call.
Types of funds	USD and CAD.
Finality of funds	FEDI payments are irrevocable as soon as confirmation is received. FEDI payments become final at noon the next day.

Table 5

Canada: Canadian Derivatives Clearing Corporation (CDCC)

Default procedures	
Events of default	Failure to meet an obligation toward CDCC. If CDCC's Board of Directors determines that the financial or operational conditions of a clearing member makes it necessary or advisable (for the protection of the Corporation, other clearing members, or the market) to impose restrictions on a member, the Board has the authority to take any of the following steps, at its discretion. First, the clearance of opening transactions by the clearing member may be limited or prohibited. Second, the clearing member may be required to reduce or eliminate existing long positions or short positions in the clearing member's accounts. Third, the clearing member may be required to transfer any of its accounts to another clearing member. If CDCC determines from its monitoring of financial adequacy that a member is insolvent or does not meet CDCC's minimum capital requirements, the Corporation's Board of Directors may, at its sole discretion, suspend that member's clearing privileges for such time and under such terms and conditions as the Board determines. Alternatively, if the Board deems that it is in the public interest or in the interest of CDCC to allow the member to continue to clear transactions, it may require that CDCC's auditors regulate and generally supervise the member's activities as they relate to its performance as a member.
Treatment of open positions	CDCC may require the defaulting members to close any open positions on the exchange. CDCC may determine that immediate closure of positions or realisation of pledged margin collateral would not be in its or the general public's interest. In such cases CDCC retains discretionary power to: – elect not to close contracts or convert collateral margin into cash; – enter into hedging transactions while maintaining open positions; – use agents to determine the nature and timing of hedging transactions.
Clearing organisation resources to cover loss	Assets available to meet any loss may be applied by CDCC in the following order: – defaulting member's cash or realised collateral margin; – defaulting member's own contribution to clearing fund; – other members' contributions to the clearing fund; – further assessment of non-defaulting members to reestablish the clearing fund.
Liquidity resources	CDCC maintains a standby credit facility with a Schedule I bank to ensure immediate access to liquid funds.

Table 1

France: Marché à Terme International de France (MATIF)

General background information	
Exchanges cleared for	MATIF provides clearing services for: – all futures contracts listed on the Exchange; – option contracts on futures and currencies; – commodity futures (through a subsidiary).
Instruments/contracts cleared	The instruments cleared by MATIF are futures contracts (interest rate, indices, commodities), options contracts on futures contracts and currencies (USD/DEM, USD/FRF, GBP/DEM, DEM/ITL, DEM/FRF). All futures contracts are denominated in FRF with the exception of ECU bond (ECU), white sugar (USD) and rapeseed (DEM). Most actively traded financial contracts: French notional bond and 3-month Pibor. Most actively traded commodity contracts: white sugar, rapeseed. Trading is mostly open outcry.
Legal form and ownership	MATIF is a credit institution. The capital of MATIF is owned by three categories of shareholders (each for one-third of the capital): the Société des Bourses Françaises, French banks and French and foreign insurance companies.
Regulation/oversight	MATIF is under the surveillance of: – the Commission Bancaire as supervisor of credit institutions; – the Banque de France for FRF short-term interest rate products; – the COB (Commission des Opérations de Bourse) monitors MATIF rules and procedures in particular as they concern client protection; – the CMT - Conseil des Marchés à Terme,[1] the market authority responsible for the regulatory management of the MATIF.

[1] As the result of the implementation of the EU Investment Services Directive of 1993 into the French legal framework, the CMT and CBV-Conseil des Bourses de Valeurs, which is the securities market and securities derivative market's self-regulatory body, will merge into a single market authority, the CMF-Conseil des Marchés Financiers. The new authority will carry out the former attributions of both the CMT and the CBV.

Table 2

France: Marché à Terme International de France (MATIF)

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation and clearing members	All members of the Exchange are members of MATIF as trading members with access to the floor and/or as clearing members (general or individual). Trading members' trades are automatically designated as the responsibility of clearing members. MATIF has a principal-to-principal relationship with clearing members. Clearing members have a principal-to-principal relationship with their clients. MATIF has no financial relationship with clearing members' clients.
Account structure of clearing organisation	Clearing members must maintain three separate accounts on the MATIF's books: – house/proprietary account; – market-makers' account if any; – clients' account: the clearing organisation does not maintain separate accounts for individual clients of clearing members.
Account structure of clearing member	Clearing members are required to segregate their clients' accounts from their own. Individual clients' accounts are segregated from another. Clearing members and trading members are accountable for the existence and the allocation of the funds received and must register them in an account opened in the name of each client.
Monitoring of account structures	The clearing organisation monitors compliance with segregation requirements by its clearing members. Members have an obligation to maintain back-office systems to the standards required by the CMT and MATIF surveillance staff have access to members' back-office accounting systems.

Table 3a

France: Marché à Terme International de France (MATIF)

Risk management	
Membership requirements	All clearing members must: – have a right of access to the market (shares in the capital of MATIF); – meet minimum net worth requirements; – maintain a legal entity in France; – belong to an eligible category as defined by the Futures Market Act.[2]
Margin requirements	Margin requirements are adjusted to changes in price each day and are calculated at the close of the day's trading. Individual or all members may be required to lodge additional margin. MATIF uses net margining. MATIF uses the Standard Portfolio Analysis of Risk (SPAN) method for determining margin requirements. Options-style margining is used for options.
Acceptable forms of margin	Cash: FRF, DEM, ITL, GBP, ECU, USD Securities: French Treasury bills, US Treasury bills, French government bonds BTAN 2-5 years, French government loans, German government loans. Clearing members are permitted to accept a wider range of collateral from their clients (fungible Treasury bonds, negotiable debt securities, French and German T-bonds).
Variation margin	All futures contracts are marked to market each business day. MATIF establishes the daily settlement prices quoted at the close of the day's trading. Discretionary additional or intraday margin calls will be made after a price fluctuation limit has been reached.

[2] Eligible category as defined by the Futures Market Act: stockbroker, credit institution, securities house, interbank market agent, authorised commission agent or commodity trader.

Table 3b

France: Marché à Terme International de France (MATIF)

Risk management	
Clearing house resources	Capital and reserves of about FRF 1 billion (31st December 1995). No members' mutual guarantee fund or assessment power but possibility to assess MATIF's members for additional shares (many of the major clearing members are participants in MATIF capital as shareholders).
Disaster recovery	The backup system forms a permanent "hot" standby and is able to permit the continuation of the Clearing House's activities through duplication of the vital components of the clearing system.
Position monitoring	MATIF uses a data system to monitor members' trading activities throughout the day. This may lead to investigations or imposition of additional margin requirements. This system enables MATIF to measure members' positions and clearing members' clients' positions in real time. The clearing members must register the trades into the trade data system within 15 minutes of the trade being executed. All unmatched trades must be corrected within 30 minutes of being registered.
Limits on price movements, trading and concentration	Limits on price movements: MATIF operates a system of trading halts whenever the price for a futures contract has reached the fluctuation limit.[3] Limits on trading and concentration:[4] – limitation of positions in individual contracts; – limitation of aggregate exposures.

3 Price fluctuation limits for main futures contracts are as follows:

Notional bond	+ or - 250 basis points
ECU bond	+ or - 250 basis points
Pibor	+ or - 80 basis points
CAC 40	+ or - 120 index points

MATIF operates a system of trading halts whenever the price for a futures contract has reached the fluctuation limit. Trading is suspended for a maximum of one hour to process additional margin calls and then reopen with a new limit.

4 Limitation of positions in individual contracts and of aggregate exposures:
– limitation of the positions of individual clearing members and clients in individual contracts.

The open interest which any one client or member (through house account) may control for each contract and for each delivery month is limited to a certain percentage of the open position as published daily (e.g. 20% for futures, 30% for commodities, on the front month). MATIF may, as an individual or collective measure, modify the fraction of open interest position that one client or member is authorised to hold.

Limitation of aggregate exposures to individual clearing members:
– initial margin on house account for all positions held may not exceed 20% of net worth;
– initial margins on positions taken on behalf of clients may not exceed 200% of net worth;
– initial margin on a single customer's account may not exceed 100% of net worth.

Table 4

France: Marché à Terme International de France (MATIF)

Money settlements	
Settlement mechanisms	Every clearing member has an account at the Banque de France in FRF and ECU. Settlements are effected on a daily basis through a single daily net cash transfer. Members are informed of the amounts they are to pay or be paid before the opening of the next business day.
Frequency of settlement	Payments from members to MATIF are processed by a "virement Banque de France" by 10:00 the next business day. MATIF also pays clearing members through transfer from MATIF account at the Banque de France by 10:00 the next business day. If a price fluctuation limit has been reached during the day, MATIF operates a system of trading halts and the trades are suspended for a maximum of one hour in order to allow clearing members to pay intraday margin calls to MATIF.
Types of funds	Central bank funds.
Finality of funds	Today trading ceases on the MATIF floor by 17:00.; MATIF establishes the daily settlement prices quoted at the close of the day's trading and calls the variation margins. The settlement occurs by 10:00 the next business day and payments to and from the Clearing House are final at the end of the accounting day at 18:30. The implementation in France of an RTGS payment system at the beginning of 1997, Transfert Banque de France - TBF, will considerably affect the finality of the payments. With TBF, payments will be final as soon as they are settled in the system, which means that finality will be obtained by the Clearing House at the beginning, instead of the end, of the settlement day.

Table 5

France: Marché à Terme International de France (MATIF)

Default procedures	
Events of default	A clearing member would be suspended following any failure to pay initial margins, option premiums, daily settlement variation or any other sum due to MATIF.
Treatment of open positions	Following suspension of a clearing member, MATIF would: – house/market-maker account: automatically liquidate all contracts in the clearing member's accounts; – client's account: transfer positions to another member.[5]
Clearing organisation resources to cover loss	Margins held for account of defaulting member. Clearing member permanent deposit (FRF 500,000). MATIF financial resources. Central bank credit at each delivery month (contracts subject to physical delivery).[6] Possibility to assess additional shares by MATIF's members. Under Article 52 of French Banking Law, the Governor of the Banque de France may ask for the backing of MATIF's shareholders, and if necessary of the whole French banking community.
Liquidity resources	Margins requirement: – in cash, invested in liquid assets and without any risk; – in securities which can easily be liquidated through outright sales or through financing transactions; – central bank credit immediately available at each delivery month (contracts subject to physical delivery).

[5] MATIF provides a guarantee to non-clearing members and clients which offers them certain protection in the event of a clearing member's default. MATIF undertakes to:
– transfer positions to another member;
– transfer or reconstitute initial margins deposited by client of a defaulting member, if these amounts are not available from the defaulting member's account;
– transfer or reconstitute settlement variation margin and any option premium for the day of the default only. MATIF undertaking does not cover any previous days' credit settlement to market variation;
– for contracts subject to physical delivery, MATIF undertakes to deliver to the buyer versus payment and to receive delivery from the client versus his payment.

[6] Under an agreement signed in June 1994 between the Banque de France and MATIF, the clearing organisation has access to central bank credit in the event of a default of payment of the buyer for contracts subject to physical delivery. Given the very low probability of such a default, the Banque de France opens a specific credit line to MATIF at each delivery month (four times a year), the credit line being secured by a repo operation. So far, this credit line has never been used by MATIF.

Table 1

France: Société de Compensation des Marchés Conditionnels (SCMC)

General background information	
Exchanges cleared for	SCMC provides clearing services for option contracts on equities and option contracts on index traded on the MONEP (Marché des Options Négociables de Paris). Transactions on MONEP are guaranteed by SBF (Société des Bourses Françaises) as soon as they have been registered by SCMC.
Instruments/contracts cleared	The instruments cleared by SCMC are option contracts on equities (49 stocks), and option contracts on index (CAC 40 short-term and long-term). All contracts are denominated in FRF. Most actively traded option contracts: CAC 40 short-term in premium value; CAC 40 short-term and CAC 40 long-term in contracts. Trading on equity options is entirely electronic. Trading on index takes place both by open outcry and through electronic system.
Legal form and ownership	SCMC is a wholly owned subsidiary of SBF. The capital of SBF, which is a credit institution, nearly wholly owned by member firms (sociétés de bourses).
Regulation/oversight	MONEP is under the supervision of: – the Minister of Economy and Finances; – the COB - Commission des Operations de Bourse charged with monitoring the proper operation of all French financial markets; – the CBV - Conseil des Bourses de Valeurs.[1] The securities market and securities derivatives market's self-regulatory body responsible for the regulatory management of all French equity markets (including the MONEP). In addition, SBF is under the surveillance of the Commission Bancaire as supervisor of credit institutions.

[1] As the result of the implementation of the EU Investment Services Directive of 1993 into the French legal framework, the CMT-Conseil des Marchés à Terme, the market authority responsible for the regulatory management of the MATIF and the CBV-Conseil des Bourses de Valeurs, the securities market and securities derivative market's self-regulatory body, will merge into a single market authority, the CMF-Conseil des Marchés Financiers. The new authority will carry out most of the former attributions of both the CMT and the CBV.

Table 2

France: Société de Compensation des Marchés Conditionnels (SCMC)

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation and clearing members	Members of the MONEP may operate as trading and/or as clearing members (individual or multi-clearer). SBF and SCMC have a principal-to-principal relationship with clearing members. Clearing members have a principal-to-principal relationship with their clients. SBF and SCMC have no relationship with clearing members' clients.
Account structure of clearing organisation	Clearing members must maintain four separate global accounts on the clearing house's books: – house/proprietary account; – market-makers' account; – clients' account; – intermediaries without clearing member status. The clearing organisation allows clearing members to open individual accounts for clients or intermediaries in the clearing system through a back-office administration service.
Account structure of clearing member	Clearing members are required to segregate their clients' accounts from their own. Individual clients' accounts are segregated from one another. Trading members not acting as clearer are required to open an account dedicated to positions in their own name. As for non-member intermediaries, the clearing members are not required to keep separate accounts for the intermediaries' proprietary positions and those taken on behalf of clients of these intermediaries.
Monitoring of account structures	The clearing organisation and the Commission Bancaire (with respect to credit institutions)[2] monitor compliance with segregation requirements by MONEP members. To this end, SBF and SCMC and the Commission Bancaire may require information from members and carry out inspections.

[2] After the implementation of the aforementioned new institutional framework, the Commission Bancaire will monitor compliance with internal segregation requirements by MONEP members whatever their status (investment firm - Paris Bourse member firm - or credit institution).

Table 3a

France: Société de Compensation des Marchés Conditionnels (SCMC)

Risk management	
Membership requirements	All clearing members must: – have a right of access to the clearing services (shares in the capital of SBF); – meet minimum net worth requirements; – belong to an eligible category.[3]
Margin requirements	Between the clearing house and the clearing members, premiums are paid in full on next business day (options-style margining). Investors with a net sell position are required to provide margin in an amount which is adjusted each day to represent the least favourable liquidation value of their positions, assuming up and down variations of the underlying instrument. SCMC uses an overall portfolio risk approach for determining margin requirements. A margin call is made when collateral on deposit is inadequate. Intraday margin calls will be made after a price fluctuation limit has been reached.[4] Individual members or all members may be required to lodge additional margins. SCMC uses net margining for each of the four accounts held by a clearing member.
Acceptable forms of margin	Cash: FRF Securities: French Treasury bills, French government bonds BTAN 2-5 years. Clearing members are permitted to accept a wider range of collateral from their clients (shares underlying equity options or CAC 40 component stocks or shares in certain money market funds).
Variation margin	Margin requirements are calculated daily at the end of the trading session. These margins are called and must be deposited before the opening of the next trading session. In the event that circuit breakers come into play, further margins are called and must be deposited before the trading resumes.

[3] Candidates for clearing membership on MONEP must be Paris Bourse member firms or credit institutions.

[4] Trading in MONEP options may be suspended:
- if trading in the underlying security is suspended due to price variation exceeding limits set by the SBF;
- if trading is halted in accordance with the "circuit breaker" system agreed with MATIF. Following a 120-point move in the index future, trades on MATIF and MONEP may be suspended for one hour to process additional margin calls and then reopen with a new limit;
- if stocks representing more than 75% of the market capitalisation of the CAC 40 index are no longer traded due to individual suspension measures.

Table 3b

France: Société de Compensation des Marchés Conditionnels (SCMC)

Risk management	
Clearing house resources	SBF capital and reserves of about FRF 1.2 billion (31st December 1995). No members' mutual guarantee fund or assessment power but possibility to assess MONEP members for additional shares (clearing members are participants in SBF capital as shareholders).
Disaster recovery	SCMC has available standby equipment in the event of a hardware failure able to permit the continuation of the Clearing House's activities.
Position monitoring	SCMC uses a data system to monitor members' trading activities throughout the day. This system enables SCMC to measure members' positions and clearing members' clients' positions in real time. Matched trades are transferred to the clearing house every 6 minutes.
Limits on price movements, trading and concentration	Limits on price movements: SCMC operates a system of trading halts whenever the price of underlying securities or the future contract on CAC 40 has reached the fluctuation limits.[5] Limits on trading and concentration:[6] limitation of positions in individual contracts.

[5] Trading in MONEP options may be suspended:
- if trading in the underlying security is suspended due to price variation exceeding limits set by the SBF;
- if trading is halted in accordance with the "circuit breaker" system agreed with MATIF. Following a 120-point move in the index future, trades on MATIF and MONEP may be suspended for one hour to process additional margin calls and then reopen with a new limit;
- if stocks representing more than 75% of the market capitalisation of the CAC 40 index are no longer traded due to individual suspension measures.

[6] Limitation of positions in individual contracts and of aggregate exposures:
- limitation of the positions of individual clearing members and clients in individual contracts. The open interest which any one member may record for each class of options into one of his global accounts is limited to 30% of the market open position as published daily.

Limitation of aggregate exposures to individual clearing members:
- large exposures and capital adequacy to market risks are also indentified and limited by prudential regulations.

Table 4

France: Société de Compensation des Marchés Conditionnels (SCMC)

Money settlements	
Settlement mechanisms	Every clearing member has an account at the Banque de France in FRF. Settlements are effected on a daily basis through a single daily net cash transfer. Members are informed of the amounts they are to pay or be paid before the opening of the next business day.
Frequency of settlement	Payments from members to the clearing house are processed by a "virement Banque de France" by 10:00 the next business day. The clearing house also pays clearing members through transfer from SBF account at the Banque de France by 10:00 the next business day. If a price fluctuation limit has been reached during the day, SBF/SCMC operates a system of trading halts and members may be required to meet margin calls no later than the reopening of the trading session.
Types of funds	Central bank funds.
Finality of funds	Today trading ceases on the MONEP floor by 17:00, SBF/SCMC establishes the daily net balance of each member (including premium and margin calls). The settlement occurs by 10:00 the next business day and payments to and from the Clearing House are final at the end of the accounting day at 18:30. The implementation in France of an RTGS payment system at the beginning of 1997, Transfert Banque de France - TBF, will considerably affect the finality of the payments. With TBF, payments will be final as soon as they are settled in the system, which means that finality will be obtained by the Clearing House at the beginning, instead of the end, of the settlement day.

Table 5

France: Société de Compensation des Marchés Conditionnels (SCMC)

Default procedures	
Events of default	A clearing member would be suspended following any failure to pay option premiums, daily settlement variation, cash amounts resulting from index-option exercise or any other sum due to SBF. Suspension would be coordinated with action in relation to the stock exchange business. A suspension would also occur in case of an opening of a collective action against a member.
Treatment of open positions	Following suspension of a clearing member, SBF/SCMC would: – house/market-maker account (if the market-maker is affiliated to the defaulting clearing member): automatically liquidate all contracts in the clearing member's accounts; – client's account and intermediaries' account: transfer positions and corresponding margins to another member at the behest of the clients.[7]
Clearing organisation resources to cover loss	Letter of credit provided, if such is the case, by the members' affiliated companies to the SBF upon which the SBF may draw on demand if the member fails to meet its payment obligation. Margins held for account of defaulting member. SBF financial resources. Possibility to assess additional shares by MONEP members. Under Article 52 of French Banking Law, the Governor of the Banque de France may ask for the backing of SBF shareholders, and if necessary of the whole French banking community.
Liquidity resources	Equity capital: – the related cash is invested in liquid assets (money market, overnight or very short-term funds). Margins requirement: – in cash, invested in liquid assets and without any risk; – in securities which can easily be liquidated through outright sales or through financing transactions.

[7] The clients of a MONEP member benefit from the protection arrangements implemented by the clearing house in the event that their clearer defaults. SBF/SCMC undertakes to:
– transfer positions to another member;
– transfer margins deposited by clients of the defaulting member;
– transfer margins deposited by the defaulting member in order to cover the positions held in clients' or intermediaries' accounts opened with the clearing house.

If, despite procedures providing for transfer of positions and assets deposited as margins, a client does not recover his assets in full, the client receives compensation up to a maximum amount from a special guarantee fund to which all Paris Bourse members firms are required to contribute. This fund is managed by entities independent of the clearing organisation. The maximum amount to be paid in the event of a default is set at FRF 200 million.

Table 1

Germany: Deutsche Börse AG (DBAG)

General background information	
Exchanges cleared for	Deutsche Terminbörse (DTB).
Instruments/contracts cleared	Futures, options and futures options on financial instruments, bonds and stocks. Most actively traded financial contracts: – DTB BUND; – DTB BOBL; – DTB DAX-Future; – DTB DAX-Option. Trading is screen-based.
Legal form and ownership	Clearing done by Deutsche Börse AG (DBAG), a private entity owned mainly by the banks. DBAG operates Deutsche Terminbörse (DTB).
Regulation/oversight	DTB is supervised by the Stock Exchange Supervisory Division (Börsenaufsichtsbehörde) of the Ministry of Economics of the State of Hesse. There is a Market Surveillance Board for both DTB and Frankfurt Stock Exchange.

Table 2

Germany: Deutsche Börse AG (DBAG)

Legal relationships and account structure	
Membership categories/legal relationships between clearing organisation, clearing members and clearing member clients	DTB has two different categories of clearing members: General Clearing Member (GCM) and Direct Clearing Member (DCM). Relationship between DTB and its clearing members is principal-to-principal.
Account structure of clearing organisation	DTB keeps two internal accounts for each clearing member, a money account for all transactions, proprietary or clients', and a safe custody account for collateral.
Account structure of clearing member	Clearing members keep proprietary and client accounts separate.
Monitoring of account structures	DTB is not responsible for monitoring segregation compliance by its clearing members.

Table 3a

Germany: Deutsche Börse AG (DBAG)

Risk management	
Membership requirements	Requirements vary by member type. A GCM needs higher liable capital and must provide a higher clearing guarantee than a DCM. A common requirement would be the proof of adequate technical equipment and staff.
Margin requirements	Margin requirements are recalculated once daily with cash margin deficits met by 09:45 at the latest. DTB uses the "Risked Based Margining". There are initial and variation margins. Premium margins and futures spread margins may apply as well.
Acceptable forms of margin	Cash (Deutsche marks). Eligible domestic exchange-traded DEM securities.
Variation margin	DTB may issue additional variation margin calls as necessary.

Table 3b

Germany: Deutsche Börse AG (DBAG)

Risk management	
Clearing house resources	Capital and reserves of DEM 146.8 million (as of 31st December 1994). Clearing fund reserves (approx. DEM 31.5 million). Guarantees provided by clearing members.
Disaster recovery	DTB has a remote backup facility and can restore operations within 24 hours at the latest.
Position monitoring	DTB monitors and recalculates clearing member positions on a real-time basis. Margins are recalculated overnight.
Limits on price movements, trading and concentration	DTB imposes positions limits on contracts (overnight check) and may suspend trading in a given contract. DTB does not specifically limit the aggregate exposure to an individual clearing member.

Table 4

Germany: Deutsche Börse AG (DBAG)

Money settlements	
Settlement mechanisms	DTB uses LCB Frankfurt (Bundesbank branch) as settlement bank. Clearing members must have an account with LCB Frankfurt.
Frequency of settlement	Only one settlement per day.
Types of funds	Bundesbank funds.
Finality of funds	Payments are final upon entry on the books of LCB Frankfurt.

Table 5

Germany: Deutsche Börse AG (DBAG)

Default procedures	
Events of default	A clearing member is in default if it fails to meet its obligation to DTB on time.
Treatment of open positions	In the case of default, DTB can either offset open positions itself or designate another member of the exchange to do so.
Clearing organisation resources to cover loss	Margin payments of the defaulting member. Deutsche Börse AG's resources (Table 3b). Clearing fund reserves. Guarantees provided by defaulting clearing member and collateral of members of the exchange clearing through it.
Liquidity resources	Margin payments of the defaulting member. Clearing fund reserves. Guarantees provided by clearing members.

Table 1

Italy: Cassa di compensazione e garanzia

General background information	
Exchanges cleared for	MIF-MTO (Italian Government Bonds Derivatives Market). IDEM (Italian Stock Derivatives Market).
Instruments/contracts cleared	Futures, futures options, and options on financial instruments. Most actively traded contracts: – Futures on ten-year Italian BTP government bond; – Futures on MIB-30 Stock Index (FIB 30). All these contracts are denominated in Italian lire and trading is screen-based.
Legal form and ownership	Separate legal entity. Owned by 21 clearing members (subset of the members of the Exchanges).
Regulation/oversight	Supervised by Banca d'Italia and Consob (National Stock Exchange Supervisory Commission).

Table 2

Italy: Cassa di compensazione e garanzia

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	All exchange members that trade derivatives must be Cassa's members as well, either as clearing or non-clearing members. Clearing members can be general or individual. The legal relationship between Cassa and its clearing members is a principal-to-principal relationship. The legal relationship between a clearing member and its clients is a principal-to-principal relationship. Cassa has no relationship with clearing member clients.
Account structure of clearing organisation	Cassa maintains, according to supervisory rules, separate accounts for clearing members' proprietary positions and margins and those of their clients. Cassa registers the positions of clearing members' customers in an omnibus account.
Account structure of clearing member	Clearing members are required to segregate their clients' accounts from their proprietary account. Individual clients' accounts are segregated from one another.
Monitoring of account structures	Cassa is not responsible for monitoring segregation compliance by its clearing members. This responsibility lies with Banca d'Italia and Consob.

Table 3a

Italy: Cassa di compensazione e garanzia

Risk management	
Membership requirements	Clearing members must be either a bank or a SIM (Security Brokerage House, according to Italian law), have direct or indirect access to the national settlement facilities, be admitted to one of the existing derivatives markets and have a certain level of net assets.
Margin requirements	Margin requirements are calculated daily. Clearing members must meet their payment obligation by 09:00 on the next trading day. Cassa uses TIMS for determining margin requirements. Cassa uses net margining for clients' accounts. Future-style margining is used for futures options; options-style margining is used for equities and stock-index options.
Acceptable forms of margin	Cash (Italian lire). Italian government securities. Underlying securities (for options on listed equities).
Variation margin	All open positions are marked to market daily. Variation margin obligations are calculated once daily. Clearing members must meet their payment obligations by 09:00. Cassa is entitled to call intraday margins for both initial and variation margins.

Table 3b

Italy: Cassa di compensazione e garanzia

Risk management	
Clearing house resources	As of 31st December 1995: Capital and reserves of about ITL 63 billion.
Disaster recovery	Cassa's backup procedure can be activated within 15-20 minutes; a disaster recovery system is also available.
Position monitoring	Members' positions are updated in the clearing system in real time, since the exchanges and the clearing house are fully automated. Cassa monitors the positions of its clearing members throughout the day to assess their global risk exposure. Should it consider that the risk exposure of a clearing member is too high, Cassa will call for intraday margins.
Limits on price movements, trading and concentration	Neither the Cassa nor the Exchanges have the power to impose limits on price movements or on positions of a single clearing member. Where it is considered necessary for market stability, limits on the amount of open positions can be introduced both on MIF/MTO (by the Treasury Ministry in consultation with the Banca d'Italia) and on IDEM (by Consob in consultation with the Italian Stock Exchange Council).

Table 4

Italy: Cassa di compensazione e garanzia

Money settlements	
Settlement mechanisms	Payments between Cassa and clearing members are made electronically through book entries on cash accounts with Banca d'Italia.
Frequency of settlement	Payments are executed on a daily basis: – reports containing all the information on payments are available at 01:00 on the next trading day; – payments must be executed by 09:00. On the same morning Cassa pays positive variation margins to clearing members. Intraday margins must be settled by the time fixed by Cassa (mostly around 15:00).
Types of funds	Central bank funds.
Finality of funds	Both payments to and from the Cassa are in same-day funds and are immediately final.

Table 5

Italy: Cassa di compensazione e garanzia

Default procedures	
Events of default	A clearing member is considered in default soon after the deadline for payment of margins and premium or for the delivery of securities has expired.
Treatment of open positions	In the event of insolvency of a clearing member, Cassa, after suspending such a member from trading, liquidates the proprietary account of the defaulting member. For client accounts, Cassa verifies if other members are willing to undertake the positions registered in this account; if so, Cassa transfers these positions, and the corresponding margins deposited, to such solvent members. If not, Cassa liquidates the client account of the defaulting member.
Clearing organisation resources to cover loss	Margins of the defaulting member. Cassa's net equity.
Liquidity resources	Margins of the defaulting member immediately available in the form of cash. Cassa's net equity immediately available in the form of cash. A credit line of ITL 50 billion.

Table 1

Japan: Tokyo Stock Exchange

General background information	
Exchanges cleared for	Tokyo Stock Exchange (TSE). However, TSE does not become a counterparty (see Table 2).
Instruments/contracts cleared	Instruments traded are: – Japanese government bond (JGB) futures; – Tokyo Stock price index (TOPIX) futures and options; – US T-bond (US Treasury bond) futures; – Options on JGB futures. Trading is all electronic.
Legal form and ownership	TSE was established based on the Securities and Exchange Law and is owned by its members (security firms).
Regulation/oversight	Subject to the supervision by the Ministry of Finance.

Table 2

Japan: Tokyo Stock Exchange

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	TSE does not have categories of members. Relationship between TSE and its members is not principal-to-principal.[1] Relationship between a member and its clients is principal-to-principal. TSE has no relationship with members' clients.
Account structure of clearing organisation	Each member owns only one account at the TSE for both its proprietary positions and margins and those of its clients.
Account structure of clearing member	Basically, members maintain one or more accounts for each client.
Monitoring of account structures	TSE does not monitor members' compliance with segregation requirements on a daily basis, but conducts periodic operational audits.

1 Some scholars argue that there are collective sales agreements between selling members and buying members for trades conducted on the TSE.

Table 3a

Japan: Tokyo Stock Exchange

Risk management	
Membership requirements	Based on an overall assessment on the applicant's business scale, financial condition and management structure (TSE has not established numerical standards).
Margin requirements	Initial margin requirements are calculated[2] once daily with margin deficits met by T+3.[3] SPAN method is not employed. TSE uses net margining for members. Options-style margining is used.
Acceptable forms of margin	Cash (JPY and USD) and eligible securities (listed equities, OTC equities, JGBs, publicly offered local government bonds, etc).
Variation margin	Variation margin obligations are calculated once daily with settlement by T+3 by cheque.[3] No intraday margin system.

[2] The minimum amount of a member's initial margin is as follows: TOPIX futures: 10% of the contract value, TOPIX Options: (Net sellers only) (Closing price of the option contract + closing value of TOPIX x 10%) x JPY 10,000 x net number of contracts sold, 10-year JGB futures: 2% of the contract value, options on 10-year JGB futures: (Net sellers only) (Closing price of the option contract x 1 million + JPY 2 million) x net number of contracts sold. Client margins will be segregated as from October 1997.

[3] TSE is currently studying the possibility of shortening this period, on the basis of the advice by the Special Committee on Derivatives of the Securities and Exchange Council in June 1996, which is expected to be achieved by the end of 1998.

Table 3b

Japan: Tokyo Stock Exchange

Risk management	
Clearing house resources	As of 31st March 1996: – capital: JPY 12 billion; – reserves: JPY 26 billion; – clearing funds and additional assessment: see Table 5.
Disaster recovery	TSE maintains backup computer and communication facilities, which will take over the operations immediately after the disruption to the main system.
Position monitoring	Members report their aggregated positions including those of their clients to the TSE every business day. Members report their clients' positions every week.
Limits on price movements, trading and concentration	TSE imposes a daily price limit on each contract. For example, the limit on JGB futures is JPY 2 (almost 2%). TSE also has the authority to suspend trading in futures and options.

Table 4

Japan: Tokyo Stock Exchange

Money settlements	
Settlement mechanisms	Settled through accounts at the 11 settlement banks under a bill and cheque clearing system.
Frequency of settlement	After the close of trading each member is informed of the amount to pay or to be paid. On T+1, each member confirms with other members the amount to pay or to be paid. On T+2, the amount becomes definite. Then, on T+3, cheques are delivered.
Types of funds	TSE allows members to pay by cheque. Chequing accounts of 11 settlement banks are involved.
Finality of funds	In principle, payment will be final at T+4 (=T+3+1), as interbank settlement through the bill and cheque clearing system is involved.

Table 5

Japan: Tokyo Stock Exchange

Default procedures	
Events of default	In principle, a member's failure to pay his obligations or his default.
Treatment of open positions	TSE designates one of the remaining members to conduct necessary transactions in the event of a member's default. TSE may require the designated member to close out or transfer to another member the unsettled positions of the failed member.
Clearing organisation resources to cover loss	Margin and member Guarantee Deposit[4] of the failed member Clearing funds.[5] Default compensation reserves.[6] Special membership fees (capability to assess additional shares).
Liquidity resources	TSE settles obligations of the failed member on its behalf. TSE has JPY 28 billion of liquid assets - JPY 21 billion of cash and deposits and JPY 4 billion of securities. In addition, the members' margins and the Member Guarantee Deposits are kept in the form of liquid assets such as cash, deposits and liquid securities. TSE does not receive explicit commitments of overdraft facilities from commercial banks.

4 The membership Guarantee Deposits are held by the TSE as compulsory contributions from members to compensate members and their clients for any loss arising from a member's default. Clients have the first priority and members have the second, from the viewpoint of customer protection. Only the defaulting member's share will be used for compensation. The total outstanding amount deposited with the TSE was JPY 9 billion as of 31st March 1996.

5 All funds (JPY 0.1 billion as of 31st March 1996) can be used to compensate net losses.

6 There are two types of reserves for futures and options. One is for JGB futures, options on JGB futures and US Treasury bond futures (the total amount: JPY 6 billion as of 31st March 1996). The other is for TOPIX futures and options (i.e. the total amount: JPY 3 billion as of 31st March 1996).

Table 1

Japan: Tokyo International Financial Futures Exchange

General background information	
Exchanges cleared for	The Tokyo International Financial Futures Exchange (TIFFE).
Instruments/contracts cleared	Instruments traded are: – Euroyen (interest rate) futures (3-month, 1 year); – Options on euroyen futures; – Eurodollar (interest rate) futures: – US dollar-yen currency futures. Futures and options trading on the TIFFE is all electronic.
Legal form and ownership	The same legal entity as the exchange. Established based on the Financial Futures Trading Law. Owned by its members (banks, securities firms, etc.).
Regulation/oversight	Subject to the supervision of the Ministry of Finance (MOF).

Table 2

Japan: Tokyo International Financial Futures Exchange

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	Clearing members and non-clearing members. Only clearing members can be counterparties of TIFFE. Relationship between a clearing member and its clients is also principal-to-principal. TIFFE has no relationship with clearing members' clients, including non-clearing members.
Account structure of clearing organisation	TIFFE calculates clearing members' positions and margins for their own trades and for those of their clients separately. However, the margins are posted with TIFFE in a single account.
Account structure of clearing member	Clearing members are required to segregate their own positions from their clients' positions in terms of calculation, and are prohibited from utilising for their own purposes cash and securities deposited by their clients as client margins.
Monitoring of account structures	TIFFE does not monitor members' compliance with segregation requirements on a daily basis, but conducts operational audits occasionally.

Table 3a

Japan: Tokyo International Financial Futures Exchange

Risk management	
Membership requirements	Membership is limited to financial institutions and financial futures brokers: – which have enough human resources to perform operations concerned; and – which have adequately high credit standing.[1]
Margin requirements	Margin requirements are calculated once daily with margin deficits met by T+1. Clearing members have two options in calculating their initial margins: the fixed ratio[2] or SPAN. TIFFE uses net margining for clearing members. Options-style margining is used for futures options.
Acceptable forms of margin	Cash (JPY and USD) and eligible securities (listed equities; OTC equities; JGBs; publicly offered local government bonds; government-guaranteed bonds, etc.).
Variation margin	Variation margin obligations are calculated basically once daily. TIFFE may issue an emergency margin call.[3]

[1] TIFFE determines whether an applicant qualifies as a member, based on an overall assessment of the applicant's asset size and financial condition, etc.

[2] The fixed ratio is as follows: euroyen futures - JPY 50 thousand for a contract (the notional trading unit is JPY 100 million), options on euroyen futures - net sellers only. (JPY 250 thousand x daily settlement price of the option contract + JPY 50 thousand) x net number of contracts.

[3] TIFFE may issue either an initial and/or variation margin call (only against those who employ SPAN for the margin calculation). TIFFE will conduct marking to market at noon, margin call around 12:30 and collect intraday margins by 15:30.

Table 3b

Japan: Tokyo International Financial Futures Exchange

Risk management	
Clearing house resources	TIFFE's capital and reserves as of 31st March 1996 were as follows: – Capital: JPY 24 billion; – Reserves: JPY 3 billion; – Loss Compensation Deposits, assessment authority, liquidity facilities: see Table 5.
Disaster recovery	TIFFE maintains backup computer and communications facilities. The backup system will take over the operations immediately after the disruption to the main system.
Position monitoring	TIFFE can monitor the aggregate positions of the proprietary and the client accounts of each clearing member every day. TIFFE may place limits on positions.
Limits on price movements, trading and concentration	TIFFE does not place limits on daily price movements. TIFFE has the authority to suspend trading.

Table 4

Japan: Tokyo International Financial Futures Exchange

Money settlements	
Settlement mechanisms	Every clearing member has a settlement account at a designated settlement bank, which in turn has an account with the Bank of Japan. Settlement among settlement banks is conducted through their accounts at the Bank of Japan every business day.
Frequency of settlement	Basically once every business day. After the close of trading, each member is informed of the amount to pay or to receive around 18:10. By 11:00 on T+1, clearing members with debit positions are to pay to TIFFE through in-house transfers at the designated settlement bank. Similarly, TIFFE is to pay clearing members with credit positions by 14:00 (settlement among settlement banks occurs through accounts at the Bank of Japan at 13:00).
Types of funds	See above.
Finality of funds	Payments between clearing members and TIFFE become final when the settlement bank credits and debits their account.

Table 5

Japan: Tokyo International Financial Futures Exchange

Default procedures	
Events of default	In principle, a clearing member's legal bankruptcy or its failure to pay its obligation to TIFFE.
Treatment of open positions	TIFFE would close out the defaulting member's proprietary positions and take appropriate measures with regard to its clients' positions.
Clearing organisation resources to cover loss	Margins, Membership Deposits and Loss Compensation Deposits[4] posted by the failed clearing member. Reserve for default compensation of the TIFFE. Loss Compensation Deposits posted by all other clearing members.[5] Assessment of Loss Compensation Deposits.[6]
Liquidity resources	In the event of a clearing member's default, TIFFE has overdraft facilities to make up for the shortfall. The overdraft facilities can be used immediately. In addition, as of end-March 1996, TIFFE had JPY 28 billion of cash and deposits. Moreover, the members' margins, Membership Deposits and Loss Compensation Deposits are kept in the form of liquid assets.

4 The Membership Deposits are held by TIFFE as compulsory contributions from members. The total outstanding amount deposited with TIFFE was JPY 4 billion as of 31st March 1996. Clients have the first priority (TIFFE has the second).

5 The Loss Compensation Deposits are the reserves collected from clearing members to prepare for any compensation of the losses incurred by TIFFE. They can be used to compensate TIFFE's losses caused by clearing members' and settlement banks' default. Total amount as of 31st March 1996 was JPY 14 billion.

6 When the loss arising from a clearing member's default exceeds available clearing funds, TIFFE could assess additional Loss Compensation Deposits on each clearing member to cover the loss, with the approval of the TIFFE board meeting.

Table 1

Netherlands: EOCC Clearing Corporation

General background information	
Exchanges cleared for	AEX-Optiebeurs.
Instruments/contracts cleared	Options traded on the AEX-Optiebeurs; most actively traded are stock options and (Dutch) stock index options. Futures traded on the AEX-Optiebeurs; most actively traded are (Dutch) stock index futures. Both options and futures are traded on open-outcry markets. The EOCC also clears certain off-exchange transactions through its clearing members.
Legal form and ownership	The EOCC is a separate legal entity. All shares of the EOCC Clearing Corporation are held by the AEX Clearing and Depository. The latter is a wholly owned subsidiary of the Amsterdam Exchanges NV.
Regulation/oversight	The Securities Board (Stichting Toezicht Effectenverkeer (STE)) and De Nederlandsche Bank perform oversight.

Table 2

Netherlands: EOCC Clearing Corporation

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	The EOCC Clearing Corporation does not have different categories of clearing members. However, 14 clearing members are qualified to clear both options and futures, whereas 1 is only qualified to clear futures. The relationship between EOCC and its clearing members is principal-to-principal. This also holds for the relationship between a clearing member and its clients. The EOCC has no legal relationship with clearing members' clients.
Account structure of clearing organisation	Clearing members are required to maintain the following separate sub-accounts at EOCC: – one market-maker's account for each market-maker for whom clearing; – one omnibus client's account for all public order members for whom clearing; – one floor broker's account for each floor broker for whom clearing. On an optional basis, clearing members may request: – one public order member account for each public order member for whom clearing; – one or more financial institutional accounts for a designated institutional client.
Account structure of clearing member	There are no regulations with respect to a clearing member's account structure. In practice, clearing members keep separate accounts for individual traders and public order members.
Monitoring of account structures	The AEX-Optiebeurs does not require public order members being credit institutions (under supervision of De Nederlandsche Bank) to segregate their customers' accounts. Public order members not being supervised by De Nederlandsche Bank are required to hold their clients' accounts with a credit institution. There also is no segregation of customer accounts at clearing member level.

Table 3a

Netherlands: EOCC Clearing Corporation

Risk management	
Membership requirements	For recognition a clearing member must: – be a legal entity; – have a guaranteed capital of at least NLG 10 million (for clearing members' clearing options) or NLG 1 million (for clearing members' clearing only futures); – satisfy the EOCC that it has the capability and facilities necessary to perform as a clearing member. (Clearing members do not need to be established in the Netherlands.)
Margin requirements	The EOCC calculates margin requirements on a daily basis, using TIMS. Margin requirements must be met at settlement time (09:00) on T+1. However, at any time of the day the EOCC may require maintenance margin from a clearing member, who has to provide this maintenance margin within one hour. The EOCC uses gross margining for clearing members' trader accounts, i.e. there is netting within trader accounts but not across. The EOCC, routinely, does not allow for netting of positions within public order members' client accounts.
Acceptable forms of margin	Underlying value, i.e. cover. A wide range of securities, including some eligible foreign securities (usually in the form of bulk deposits). Bank guarantee (the guarantor shall not be a clearing member or be affiliated with one). Cash.
Variation margin	Variation margin obligations are calculated at the end of the day (by way of marking to market). Variation margin is settled at settlement time (09:00) on T+1. The EOCC may require a clearing member to provide maintenance margin at any time of the day.

Table 3b

Netherlands: EOCC Clearing Corporation

Risk management	
Clearing house resources	The EOCC maintains Clearing Funds for options and futures. In practice, all contributions to these funds are in approved government securities. At end-1996, these clearing funds, respectively, amounted to NLG 174 million and NLG 4.8 million. The EOCC has an unlimited authority to assess its clearing members for losses exceeding the clearing funds resources.
Disaster recovery	EOCC has a remote backup facility and can restore operations at the latest as of the beginning of the following day.
Position monitoring	Since the EOCC does not assume any obligations with regard to new trades until commencement time, i.e. after settlement has taken place, there are no formal mechanisms in place to monitor intraday exposures resulting from new trades. However, in practice, the exchange's surveillance department closely monitors large positions. The exchange supplies the EOCC with "end-of-day" matched trade reports.
Limits on price movements, trading and concentration[1]	The AEX-Optiebeurs has the authority to temporarily freeze prices of futures in case of excessive movements in the prices of the underlying instruments. The AEX-Optiebeurs establishes position limits for a limited number of stock positions (as a percentage of the number of freely tradable shares on the AEX-Stock Exchange).

1 As from February 1997, the AEX-Optiebeurs will temporarily suspend trading in options and futures on those underlying instruments of which trading on the AEX-Stock Exchange has been suspended.

Table 4

Netherlands: EOCC Clearing Corporation

Money settlements	
Settlement mechanisms	The EOCC uses a commercial bank (Kas Associatie NV) as settlement bank. All clearing members must have an account at this bank. Clearing members have authorised the EOCC to debit their cash accounts at Kas Associatie NV.
Frequency of settlement	In normal circumstances once a day. Regular settlement time is 09:00, i.e. before trading starts.
Types of funds	Payments are in immediately available funds at the settlement bank.
Finality of funds	Finality of payments may be questioned because of zero-hour clause in bankruptcy law.

Table 5

Netherlands: EOCC Clearing Corporation

Default procedures	
Events of default	A clearing member defaults if: – it does not comply promptly and fully with all provisions of the EOCC's General Conditions; – it is in a situation in which a creditor seizes any of its assets; – according to the EOCC, it may be unable to satisfy its obligations as they become due and payable; – it applies for moratorium or bankruptcy or is subject to a petition for bankruptcy; or – it ceases to have full authority over a substantial portion of its assets, or is subject to any investigation, disciplinary or corrective measure by any authority.
Treatment of open positions	In case of a clearing member's default, the EOCC would: – liquidate any house account position (house accounts are positions a clearing member, incidentally, may hold as market-maker or floor broker); – liquidate any trader account in default; – attempt to transfer positions of non-defaulting traders and public order members and clients to another clearing member; – if the previous step proves impractical, than all positions will be neutralised, either through opposite transactions on the exchanges (closing) or using other markets (hedging).
Clearing organisation resources to cover loss	The EOCC would, successively, call on: – cash and collateral provided by the failing clearing member; – the failing clearing member's contribution to the relevant clearing fund (if necessary, also its contribution to the other clearing fund); – the other clearing members' contributions to the relevant clearing fund; – additional contributions of clearing members to the clearing fund.
Liquidity resources	The EOCC would be able to immediately liquidate margin assets into same-day funds through the trade-for-trade facility operated by Necigof (the Dutch central securities depository). However, because it is unlikely that this facility would enable the EOCC to fulfil its money settlement obligations resulting from outstanding contracts at settlement time (and, moreover, risks further disturbing the underlying market), the EOCC is exploring possibilities of a credit facility with its clearing members on the basis of its clearing funds.

Table 1

Sweden: OM Stockholm AB

General background information	
Exchanges cleared for	OM Stockholm AB (integrated exchange and clearing house). Traded Interbank/cleared by OM Stockholm.
Instruments/contracts cleared	Futures and options on interest rates, stocks and stock indexes (all in Swedish kronor, Norwegian kronor or Finnish markkaa) are most actively traded. Trading at OM Stockholm is screen-based. OM accepts off-exchange trades to be cleared as well.
Legal form and ownership	Company limited by shares with two main areas of operation - exchange and clearing (authorised under the *Exchange and Clearinghouse Act*). Owned by OM Gruppen AB (publ.), listed on the Stockholm Stock Exchange (major shareholders are investment and insurance companies).
Regulation/oversight	Supervised by Swedish Financial Supervisory Authority (SFSA).

Table 2

Sweden: OM Stockholm AB

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	All exchange members are clearing members (some clearing members are not exchange members). Principal-to-principal relationship with clearing members and principal-to-principal relationship with clients. Effective upon registration.
Account structure of clearing organisation	Separate accounts for clearing members and individual clients (no commingling).
Account structure of clearing member	Clearing members must segregate own accounts from those of clients. Individual client accounts also segregated.
Monitoring of account structures	OM monitors compliance. Based on predetermined schemes and through random checks.

Table 3a

Sweden: OM Stockholm AB

Risk management	
Membership requirements	Minimum shareholders' equity, approved by SFSA (or equivalent body in EU countries) and satisfactory level of administration. Foreign members are accepted subject to certain operational considerations.
Margin requirements	OM calculates initial margin requirements daily. clearing members and clients must meet margin deficits by 11:00 the following day. Options-style margining. Gross margining. Calculated with a delta-based approach.
Acceptable forms of margin	Cash (19 currencies). Guarantees by an approved bank (limited amounts and not within the same "corporate family"). Government bonds (6 countries). Swedish Treasury bills and Riksbank's certificate. Shares traded at Stockholm Stock Exchange and Oslo Stock Exchange. CDs and bonds issued by the six large mortgage institutions.
Variation margin	OM calculates variation margin daily (included in initial margins). Clearing members and clients must meet margin deficits by 11:00 the following day. OM may issue additional variation margin calls as necessary.

Table 3b

Sweden: OM Stockholm AB

Risk management	
Clearing house resources	OM has about SEK 1.6 billion in cash and credit lines at two major Swedish banks of SEK 500 million each.
Disaster recovery	OM can restore operations at a mirror facility within a few hours.
Position monitoring	OM monitors the largest positions and changes in trading pattern.
Limits on price movements, trading and concentration	OM does not limit price movements.

Table 4

Sweden: OM Stockholm AB

Money settlements	
Settlement mechanisms	All settlement in SEK is made in the Riksbank's RTGS system (RIX), where OM has an account solely for this settlement. Clearing members and clients who do not have an account with the Sveriges Riksbank (i.e. non-banks) have to use a settlement bank.
Frequency of settlement	Settlement is done daily at 11:30.
Types of funds	Settlement is done in central bank funds. Clearing members who do not have an account with Sveriges Riksbank (i.e. non-banks) have to use a settlement bank.
Finality of funds	Payments in same-day funds are final when settled in the RIX system, where all net debit and net credit transfers are executed simultaneously.

Table 5

Sweden: OM Stockholm AB

Default procedures	
Events of default	Failure to meet: payment obligations, margin requirements and deliveries, or other violations of the rules. OM has the right to declare clearing members and their clients in default if OM suspects that they will become insolvent.
Treatment of open positions	OM will assume control of defaulting member's (and its clients') position, which will be managed/liquidated. In case of a clearing member default clients can always proceed with another clearing member, to which margins are transferred.
Clearing house resources to cover losses	Posted margins and the OM Group's assets.
Liquidity resources	Liquidation of margin pledged by the failing member can be made through the RTGS facility of the Swedish CSD/SSS; if not, OM can use their standing credit lines. OM also has approximately SEK 1.6 billion in cash.

Table 1

Switzerland: Swiss Options and Financial Futures Exchange (SOFFEX)

General background information	
Exchanges cleared for	Swiss Options and Financial Futures Exchange.
Instruments/contracts cleared	Options on selected Swiss stocks. Options on the Swiss Market Index (SMI). Futures on the SMI. Futures on Swiss government bonds (CONF futures). Options on CONF futures. COMI (COnf-MIdterm). All contracts are denominated in Swiss francs. Trading is electronic.
Legal form and ownership	SOFFEX is a company limited by shares. The Swiss Stock Exchange holds all the shares of SOFFEX. The clearing house is a department of SOFFEX.
Regulation/oversight	SOFFEX is a self-regulatory organisation. The rules and regulations of SOFFEX are based on the Zurich Securities Law. SOFFEX is subject to oversight by the Zurich Stock Exchange Commission.[1]

[1] This changed on 1st February 1997, when the Federal Law on Stock Exchanges and Securities Trading took effect.

Table 2

Switzerland: Swiss Options and Financial Futures Exchange (SOFFEX)

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	There are two categories of clearing members: – general clearing members may clear for their own trades and for trades of their clients as well as for non-clearing exchange members; – direct clearing members may only clear for their own trades and for trades of their clients; they are not permitted to clear for non-clearing exchange members. The legal relationship between SOFFEX and its members is a principal-to-principal relationship. The legal relationship between a clearing member and its clients is a principal-to-agent relationship. There is no legal relationship between SOFFEX and the clients of its clearing members.
Account structure of clearing organisation	SOFFEX maintains separate proprietary and client position accounts for each clearing member. The client position account is an omnibus account for all clients of the clearing member.[2] Only one margin general account consisting of one cash, one securities and one guarantee account is held for each clearing member. There are no separate accounts for clients' margin positions.
Account structure of clearing member	Clearing members are required to segregate their clients' accounts from their own accounts as well as to segregate the individual clients' accounts from each other.
Monitoring of account structures	SOFFEX monitors compliance with the segregation requirements in the clearing members' books through external auditors, who report directly to SOFFEX.

[2] Each direct clearing member has the following accounts with SOFFEX: one or two principal accounts, one or two market-maker accounts, one client account. The general clearing member additionally has one or more position accounts for non-clearing members. A non-clearing member account is, in turn, divided into principal, market-maker and client sub-accounts.

Table 3a

Switzerland: Swiss Options and Financial Futures Exchange (SOFFEX)

Risk management	
Membership requirements	A clearing member of SOFFEX must: – be a bank;[3] – have published a certain amount of eligible funds; – furnish a contribution to the clearing fund; – maintain an account with the Swiss National Bank (SNB) and with the Swiss Securities Clearing Corporation (SEGA); – satisfy SOFFEX on operational issues and adequacy of back-office systems.
Margin requirements	Margin requirements are recalculated daily and must be met by one hour before the start of trading on the day following the trading day. Premium-plus method is used to calculate margin requirements for options. SOFFEX uses net margining for client positions. SOFFEX uses option-style margining for options.
Acceptable forms of margin	Cash (Swiss francs). Securities eligible for collateral for borrowing from the SNB, listed in Switzerland, and qualifying for deposit with SEGA. SOFFEX underlyings are also accepted as cover for the corresponding positions. Bank guarantees issued in the form prescribed by SOFFEX.
Variation margin	SOFFEX performs daily mark-to-market revaluation for all open futures contracts. The settlement occurs in the morning on the day following the trading day. SOFFEX may issue intraday margin calls as necessary.

[3] As specified in the Federal Law on Banks and Savings Banks.

Table 3b

Switzerland: Swiss Options and Financial Futures Exchange (SOFFEX)

Risk management	
Clearing house resources	As per 31st December 1995: – capital and reserves of CHF 16 million; – clearing guarantee fund of CHF 70 million.
Disaster recovery	SOFFEX maintains backup computer and telecommunication facilities.
Position monitoring	Members' positions are automatically updated in SOFFEX's clearing system. As a rule, SOFFEX monitors the positions at the end of each trading day.
Limits on price movements, trading and concentration	Concentration limits are only applied on stock options.

Table 4

Switzerland: Swiss Options and Financial Futures Exchange (SOFFEX)

Money settlements	
Settlement mechanisms	The cash settlement is performed through the accounts of SOFFEX and the clearing members at the SNB.
Frequency of settlement	Settlement occurs daily on the day following the trading day. SOFFEX makes payments to the members at about 07:00. The members' payments are due one hour before the start of trading.
Types of funds	Only central bank funds are used for settlement.
Finality of funds	The settlement is final only if enough funds are available on the accounts of all clearing members and SOFFEX at the SNB. If a member fails to meet this requirement, SNB transfers the deficit amount from SOFFEX's account to the defaulting member's account. The SNB is authorised to unwind the whole daily settlement in the case of clearing house's default.

Table 5

Switzerland: Swiss Options and Financial Futures Exchange (SOFFEX)

Default procedures	
Events of default	A member may be declared in financial default if it fails to meet its financial obligation to SOFFEX or if in SOFFEX's view any other reasons for a declaration of default exist. A member may be declared in technical default if it can prove that the failure occurred for reasons other than financial inability to meet obligations.
Treatment of open positions	In case of default, SOFFEX assumes control over all positions the defaulting member is responsible for, i.e. the positions on proprietary, client and non-clearing member accounts of the defaulting member. The positions on all these accounts will be netted together to a single net position and liquidated by trading out.
Clearing organisation resources to cover loss	Defaulting member's margins and clearing guarantees. SOFFEX's capital. Clearing guarantees of the non-defaulting members (replenishment within ten business days after default).
Liquidity resources	Cash on SOFFEX's account at the SNB, not used as margin deposits. Guarantees accepted by SOFFEX as margins or as contributions to the clearing fund (only defaulting member's margins can be used). Liquidation of securities deposited by the defaulting member as margins.

Table 1

United Kingdom: London Clearing House (LCH)

General background information	
Exchanges cleared for	London International Financial Futures and Options Exchange (LIFFE). London Metal Exchange (LME). International Petroleum Exchange (IPE). Tradepoint.[1]
Instruments/contracts cleared	Futures and options on futures on financial instruments, non-ferrous base metals, energy, soft commodities; options on equities. Most actively traded financial futures and options contracts: – German government bond; – Three-month euromark; – UK government bond; – Three-month sterling; – Italian government bond. Most actively traded commodity contracts: – Aluminium, copper; – Brent crude; – Cocoa, coffee. Most trading is conducted by open outcry.
Legal form and ownership	UK incorporated private company owned by clearing members (75%) and the exchanges for which it clears (25%).
Regulation/oversight	LCH is supervised by the Securities and Investments Board.

[1] Tradepoint is an electronic stock exchange, not a derivatives exchange. Since the group's focus is exchange-traded derivatives clearing, no further reference is made in the table to Tradepoint's activities.

Table 2

United Kingdom: London Clearing House (LCH)

Legal relationships and account structure	
Membership categories/legal relationships between clearing organisation, clearing members and clearing member clients	The exchanges have various categories of clearing members, some of whom may clear only own-account trades. Only exchange clearing members may be members of LCH; the relationship is principal-to-principal. LCH has the following categories of member: – members who clear only their own business; – members who clear their own and client business; – members who clear their own, their clients' and other exchange members' business. Clearing members have a principal-to-principal relationship with clients.
Account structure of clearing organisation	LCH makes available to clearing members two types of account: – a segregated client account for those members which have segregated client business; this account is an omnibus account; and – a house account which includes non-segregated client positions as well as proprietary positions. LCH does not make accounts available to clients of clearing members.
Account structure of clearing member	A clearing member's business with clients is subject to the client protection rules of its regulator. Under the UK regulator's rules, client money must be segregated from that of the member, except in the case of certain categories of client with whom the member may agree that its money is not segregated. Positions in members' segregated client accounts at LCH, and the related margin cover, are fully segregated from the house account positions, and the related margin cover.
Monitoring of account structures	The Securities and Futures Authority (SFA) monitors segregation and compliance with client money rules for those LCH members which are regulated by it.

Table 3a

United Kingdom: London Clearing House (LCH)

Risk management	
Membership requirements	Members must: – be clearing members of one of the exchanges which use LCH; – satisfy LCH regarding operational capacity; – meet capital requirements (ranging from GBP 0.5 million to GBP 50 million) depending on the scope of their clearing business.
Margin requirements	Margin requirements are calculated daily. LCH uses a variant of the SPAN system (London SPAN) to calculate initial margin requirements. For options on futures (except those on LME), LCH uses futures-style margining. For LIFFE's equity options and LME options, premium paid upfront margining is used.
Acceptable forms of margin	Cash (pounds sterling, US dollars, Deutsche marks, Italian lire, ECU, Swiss francs, Japanese yen, Spanish pesetas, French francs). Bank guarantees. Government bonds (UK, US, German, Spanish, Italian). Treasury bills (UK, US, Italian, Spanish). CDs (US, UK). Equities (UK).
Variation margin	Positions are marked to market and variation margins settled daily. In the case of LME contracts and LIFFE's equity index options and options on individual equities, variation losses are collected in cash or acceptable non-cash collateral but variation profits are credited to members' accounts rather than paid out. Additional margin may be called intraday when market movements suggest that initial margin rates for individual contracts may be inadequate. Intraday margin may be called, e.g. during turbulent market conditions.

Table 3b

United Kingdom: London Clearing House (LCH)

Risk management	
Clearing house resources	As at 31st October 1996: – Capital and reserves: GBP 50 million; – Standby lines: GBP 25 million. In addition, LCH has a Member Default Fund of GBP 150 million from members' contributions.
Disaster recovery	LCH has a remote backup site and could restore operations in a few hours.
Position monitoring	LCH monitors members' positions daily. Margin requirements are calculated after registration of trades with LCH (which takes place within one hour of the closing of the exchanges) using exchange settlement prices for reference.
Limits on price movements, trading and concentration	Three contracts (LIFFE's BIFFEX contract, Potato contract and JGB[2] contract) have fixed price limits/trading halts. LCH and the exchanges have unlimited emergency intervention powers for imposing trading halts and other sanctions, e.g. position limits and liquidation orders, and LCH has discretion as to how positions are marked to market in these circumstances. LCH monitors firms' share of market turnover and open interest.

2 Price limits are in place for the JGB contract because of TSE requirements.

Table 4

United Kingdom: London Clearing House (LCH)

Money settlements	
Settlement mechanisms	LCH uses 23 settlement banks under its Protected Payments System (PPS). Clearing members must have an account with at least one of these banks; LCH has an account at each. Settlement takes place by book-entry transfer between members' and LCH's accounts at these banks.
Frequency of settlement	Daily. The PPS banks must confirm by 09:00 on T+1 that payment will be made by close of business that day. LCH gives instructions in the middle of the day for payment of variation margin profit to those members who request it by 10:30.
Types of funds	Settlement is in commercial bank funds.
Finality of funds	Funds are final once the PPS banks have completed transfers through the interbank clearing system for the currency concerned; for sterling, finality may be intraday if RTGS is used. Funds will be available to account holders according to their agreement with the PPS bank concerned.

Table 5

United Kingdom: London Clearing House (LCH)

Default procedures	
Events of default	LCH has discretion to declare a member in default in a number of circumstances including: – failure to meet payment obligations on time or likely difficulty in doing so; – insolvency of member or related company; – regulatory action.
Treatment of open positions	Proprietary positions would be closed out. Client positions would be transferred to another member if possible.
Clearing organisation resources to cover loss	Defaulter's margin. Defaulter's contribution to GBP 150 million Member Default Fund. Current year's earnings up to a maximum of GBP 10 million. Remainder of GBP 150 million Member Default Fund. GBP 100 million insurance cover for cumulative losses greater than GBP 150 million. Remaining LCH assets.
Liquidity resources	Cash balances free after payment of variation margin profit (by 10:30). Standby lines of GBP 25 million.

Table 1

United Kingdom: OMLX, The London Securities and Derivatives Exchange (OMLX)

General background information	
Exchanges cleared for	OMLX (the clearing house is an integral part of the exchange). OMLX also clears some OTC products.
Instruments/contracts cleared	Futures and options on financial instruments in Swedish kronor: – OMX index; – Swedish equity derivatives - futures and options on a range of 23 stocks. Trading is electronic.
Legal form and ownership	UK incorporated company wholly owned by OM Gruppen, which is quoted on the Swedish Stock Exchange.
Regulation/oversight	OMLX is supervised by the Securities and Investments Board.

Table 2

United Kingdom: OMLX, The London Securities and Derivatives Exchange (OMLX)

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	For exchange-traded and OTC products: – general clearing and OTC member - clears client, house, other clearing and non-clearing member trades; – direct clearing member - clears house and client trades; – non-clearing member. OMLX has a principal-to-principal relationship with its clearing members. Clearing members have a principal-to-principal relationship with clients.
Account structure of clearing organisation	Clearing members (other than those who clear only their own trades) may have three types of account at OMLX: – house/non-segregated account; – omnibus client/segregated account; – individual segregated client accounts. The different types of account are margined separately with no offset.
Account structure of clearing member	Clients of clearing members may choose whether or not their accounts are segregated from the member's house/proprietary account, and whether they are individually segregated or held in an omnibus account.
Monitoring of account structures	The SFA monitors segregation and compliance with client money rules.

Table 3a

United Kingdom: OMLX, The London Securities and Derivatives Exchange (OMLX)

Risk management	
Membership requirements	Minimum criteria for OMLX membership are: – SFA or home regulatory authority approval; – satisfactory level of administration. In addition, clearing members must meet higher capital requirements: – general clearing member: net current assets GBP 2 million; paid-up share capital/reserves GBP 1 million; – direct clearing member: net current assets GBP 1 million; paid-up share capital/reserves GBP 500,000.
Margin requirements	Margin requirements are calculated daily. OMLX uses a risk-based system called OMS II (similar to SPAN). Option premiums are paid upfront by option purchasers. Option writers pay any negative variation margin until the option expires or is exercised, but receive positive variation margin only on expiry or exercise.
Acceptable forms of margin	Cash (pounds sterling, Swedish kronor, US dollars). Bank guarantees. Government securities (UK, Swedish, US). CDs (pounds sterling, US dollars). Swedish equities traded on SEAQI.
Variation margin	Positions are marked to market daily. Intraday margin may be called, e.g. during turbulent market conditions.

Table 3b

United Kingdom: OMLX, The London Securities and Derivatives Exchange (OMLX)

Risk management	
Clearing house resources	As at 31st August 1995: capital and reserves GBP 20.8 million. In addition, OMLX has a parental guarantee from OM Gruppen AB.
Disaster recovery	OMLX's backup plan relies on the use of its sister company, OM Stockholm. This could be activated within a reasonable time.
Position monitoring	OMLX operates on a real-time basis. Positions are monitored throughout the day. Margin requirements are calculated overnight after registration of the day's trades with OMLX.
Limits on price movements, trading and concentration	OMLX may establish limits at its discretion on all products. If a member has more than 10% of the open interest OMLX will automatically initiate enquiries. A form of large trader reporting is planned for 1996.

Table 4

United Kingdom: OMLX, The London Securities and Derivatives Exchange (OMLX)

Money settlements	
Settlement mechanisms	OMLX use 12 settlement banks under its Protected Payment System (PPS). Clearing members must have an account with one of these banks; OMLX holds an account at three. Settlement takes place by book-entry transfer where OMLX has an account at the same bank, and by interbank transfer where it does not.
Frequency of settlement	Daily. The PPS banks must confirm by 11:00 on T+1 that payment will be made by close of business that day. OMLX gives instructions by 13:00 on T+1 for payment of variation margin profit to those members who request it by that time.
Types of funds	Settlement is in commercial bank funds.
Finality of funds	Funds are final once the PPS banks have completed transfers through the interbank clearing system for the currency concerned; for sterling, finality may be intraday if RTGS is used. Funds will be available to account holders according to their agreement with the PPS bank concerned.

Table 5

United Kingdom: OMLX, The London Securities and Derivatives Exchange (OMLX)

Default procedures	
Events of default	OMLX has discretion to declare default in a number of circumstances: – failure to meet payment obligations on time or likely difficulty in doing so; – insolvency; – regulatory action; – declaration of default by another Recognised Investment Exchange or Recognised Clearing Houses used by the member.
Treatment of open positions	Proprietary positions would be closed out. Client positions would be transferred to another member if possible.
Clearing organisation resources to cover loss	Defaulter's margin. OMLX own funds. Parental guarantee.
Liquidity resources	Working capital cash. Standby line of SEK 500 million (shared with rest of group) from SE Banken.

Table 1

United States: Board of Trade Clearing Corporation (BOTCC)

General background information	
Exchanges cleared for	Chicago Board of Trade. MidAmerica Commodity Exchange.
Instruments/contracts cleared	Futures and futures options on financial instruments, agricultural commodities, metals and catastrophe insurance. All contracts are denominated in US dollars. Most actively traded financial contracts: US Treasury bonds, ten-year US Treasury notes, five-year US Treasury notes. Most actively traded agricultural contracts: corn and soybeans. Trading is mostly open outcry.
Legal form and ownership	Separate legal entity. Owned by clearing members (subset of members of exchange).
Regulation/oversight	BOTCC is a self-regulatory organisation (SRO) under the supervision of the Commodity Futures Trading Commission (CFTC). Chicago Board of Trade is also an SRO.

Table 2

United States: Board of Trade Clearing Corporation (BOTCC)

Legal relationships and account structure	
Membership categories/legal relationships between clearing organisation, clearing members and clearing member clients	BOTCC does not have different categories of clearing members. Relationship between BOTCC and its clearing members is principal-to-principal. Relationship between a clearing member and its clients is also principal-to-principal.[1] BOTCC has no relationship with clearing members' clients.
Account structure of clearing organisation	Each clearing member maintains two accounts at BOTCC: a proprietary account and a client account. The client account is an omnibus account for all clients of the clearing member.
Account structure of clearing member	The account structure of the clearing member is similar to that of the clearing organisation. Each client of the clearing member maintains proprietary and client accounts at the clearing member. The client account is used for all clients of the clearing member's client.
Monitoring of account structures	BOTCC is not responsible for monitoring segregation compliance by its clearing members. This responsibility lies with the Chicago Board of Trade.

[1] Although a clearing member is obliged to make payment to the clearing organisation if a client defaults, there is some legal uncertainty over whether the clearing member is obliged to make payment to a client if the clearing organisation defaults.

Table 3a

United States: Board of Trade Clearing Corporation (BOTCC)

Risk management	
Membership requirements	Requirements for clearing members that are futures commission merchants (FCMs) include ownership of shares of BOTCC, seats on the Chicago Board of Trade, and a certain level of liquid funds (including margin in the form of cash).
Margin requirements	Margin requirements are recalculated twice daily (14:00 and 03:00) with margin deficits met by 06:40.[2] The Standard Portfolio Analysis of Risk (SPAN) method is used for determining margin requirements. BOTCC uses net margining for client positions. Options-style margining is used for futures options.
Acceptable forms of margin	Cash (US dollars). US Treasury securities. Letters of credit. Certain passthrough mortgage-backed securities.
Variation margin	Variation margin obligations are calculated twice daily: - at 14:00 (with settlement by 15:00); - at 03:00 (with settlement by 06:40).[3] BOTCC may issue additional variation margin calls as necessary.

[2] Net afternoon variation settlement credits are reduced by the amount of any original margin deficit but afternoon variation debits are not increased by any original margin deficit.

[3] About 90% of variation margin is collected during the intraday settlement at 15:00. In addition, BOTCC holds back until final settlement 20% of intraday variation margin to clearing members with net gains.

Table 3b

United States: Board of Trade Clearing Corporation (BOTCC)

Risk management	
Clearing house resources	As of 31st December 1995: – Capital and reserves of USD 156 million; – Committed lines of credit of USD 300 million.[4]
Disaster recovery	BOTCC has a remote backup facility and can restore operations in no more than six hours.
Position monitoring	Trades must be reported to BOTCC within one hour after the end of the 15-minute trading interval in which the trade was executed. As of 1st January 1996, BOTCC uses trades reported to it during the day, both matched and unmatched, to estimate in approximately real time its exposure to each clearing member. These exposures are monitored against net debit "caps" set for each clearing member. If a clearing member meets or exceeds its cap, BOTCC will counsel the clearing member and take additional measures as deemed appropriate.
Limits on price movements, trading and concentration	Chicago Board of Trade limits the daily changes in contract prices. It also limits positions in certain contracts and receives daily large trader positions for customers, non-customers, and proprietary accounts at member firms.

4 BOTCC does not have a clearing fund. Instead, clearing members are required to purchase stock in BOTCC based on the clearing member's trading volume and open interest. In addition, BOTCC may require its clearing members to purchase additional stock to replenish BOTCC's capital.

Table 4

United States: Board of Trade Clearing Corporation (BOTCC)

Money settlements	
Settlement mechanisms	BOTCC uses six settlement banks. Clearing members must have an account with at least one of the settlement banks. Settlement between the settlement banks occurs by Fedwire funds transfers.
Frequency of settlement	Settlement occurs twice daily: – by 15:00 for intraday variation margin; and – by 06:40 the following day for final settlement.
Types of funds	Payments are in immediately available funds at the settlement banks. Payments between settlement banks are made over Fedwire.
Finality of funds	Payments are final upon entry on the books of the settlement banks.

Table 5

United States: Board of Trade Clearing Corporation (BOTCC)

Default procedures	
Events of default	A clearing member is in default if it fails to meet its obligation to BOTCC on time.
Treatment of open positions	For clearing member positions, BOTCC may cause all such positions to be closed in the open market, transferred to any other clearing member, or otherwise resolved as deemed appropriate by BOTCC. For client accounts of the defaulting member, BOTCC may transfer the accounts to other clearing members chosen by the defaulting member, BOTCC, or the client.
Clearing organisation resources to cover loss	Proprietary margin of the defaulting member. BOTCC's capital. Ability to assess clearing members for additional shares.
Liquidity resources	USD 300 million in lines of credit. About USD 1 million in unrestricted cash (cash which is not used for margin deposits). Proprietary margin of the defaulting member which is in the form of cash or letters of credit.

Table 1

United States: Clearing House Division of the Chicago Mercantile Exchange (CME)

General background information	
Exchanges cleared for	Chicago Mercantile Exchange.
Instruments/contracts cleared	Futures and futures options on interest rates, stock indexes, currencies and agricultural commodities. Most actively traded contracts: – Three-month eurodollar; – S&P 500 stock price. Foreign currency contracts are offered (predominately denominated in dollars). The vast majority of contracts are denominated in dollars. The vast majority of trading is open outcry.
Legal form and ownership	Division of the exchange. The exchange is owned by its members.
Regulation/oversight	The CME is regulated by the Commodity Futures Trading Commission (CFTC). The CME is a self-regulatory organisation.

Table 2

United States: Clearing House Division of the Chicago Mercantile Exchange (CME)

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	The CME clearing division has two membership categories: – CME clearing members qualified to clear all transactions; – International Monetary Market class B clearing members authorised to deal in currency futures. The clearing house has a principal-to-principal relationship with its clearing members. It has no legal relationship with clients of its clearing members. The clearing member has an agency relationship with clients.[1]
Account structure of clearing organisation	For each clearing member, separate accounts are maintained for funds and positions of customers and for funds and positions of the clearing member. This account structure is a regulatory requirement.
Account structure of clearing member	Client funds and positions are in accounts segregated from the clearing member's funds and positions. A single client account may contain funds and positions of more than one customer. This account structure is a regulatory requirement.
Monitoring of account structures	The clearing house monitors compliance by clearing members with segregation requirements.

1 This legal relationship is subject to debate. Some attorneys at the CFTC have argued that the relationship is principal-to-principal.

Table 3a

United States: Clearing House Division of the Chicago Mercantile Exchange (CME)

Risk management	
Membership requirements	Ownership of six exchange seats. Adjusted net capital in excess of the larger of regulatory capital requirements, USD 2 million, or 6% segregation requirement plus 6% non-customer margin. Post required security deposit. Adequate financial and operational capability.
Margin requirements	The CME establishes minimum initial and maintenance performance bond (margin) requirements for all products. Performance bonds are recalculated twice daily (14:00 and 01:00) with margin deficits met by 15:00 and 06:40. Margins are determined using the SPAN system, a risk-based portfolio simulation tool. The CME uses a gross margining system. Current exposures on options are collateralised (a so-called option-style margining system).
Acceptable forms of margin	Cash (US dollars, Japanese yen, Deutsche marks, Swiss francs, pounds sterling, Canadian dollars, French francs, Italian lire, Spanish pesetas or Swedish kronor). US Treasury obligations. Canadian government debt. Shares of approved mutual funds. Letters of credit. Certain equities, with restrictions.
Variation margin	The clearing house routinely performs two mark-to-market calculations each day: – 14:00 (with settlement by15:00); and – 01:00 (with settlement by 06:40). In times of extreme price volatility, the clearing house has the authority to perform additional marks to market with calls for payment within one hour.

Table 3b

United States: Clearing House Division of the Chicago Mercantile Exchange (CME)

Risk management	
Clearing house resources	As of 31st December 1995: – Surplus funds: USD 41 million; – Security deposits: USD 88 million; – Trust fund: USD 57 million. The clearing house has a common bond: all clearing members are mutually and severally liable for any unsatisfied default to the clearing house.
Disaster recovery	Computer processing for the clearing system can be changed to a backup location in an hour.
Position monitoring	Trades must be reported to the clearing house within one hour after the end of the 15-minute trading interval in which the trade was executed. Because the CME is a gross margining system, the clearing house also must receive information (known as position change sheets) from each clearing member as to whether a particular trade opened or closed a position in order to calculate margin requirements. This information is provided to the clearing house by 11:30 for the intraday settlement and by 21:00 for the end-of-day settlement.
Limits on price movements, trading and concentration	Some contracts have price limits. The CME can suspend trading in a contract. The Market Surveillance Department of the CME monitors concentrated positions.

Table 4

United States: Clearing House Division of the Chicago Mercantile Exchange (CME)

Money settlements	
Settlement mechanisms	Clearing members are required to maintain accounts at one or more of seven settlement banks. Settlement banks provide irrevocable commitments that they will honour CME instructions to transfer funds from clearing member accounts to the CME account. Balancing transfers among the settlement banks occur by Fedwire funds transfers.
Frequency of settlement	The clearing house regularly performs two settlement cycles daily: – intraday by 15:00 (Chicago time);[2] – end of day by 06:40 (Chicago time) on the next business day.
Types of funds	Payments are in immediately available funds at the settlement banks. Payments between settlement banks are made with Fedwire funds transfers.
Finality of funds	Payments are final when posted on books of the settlement bank.

[2] The intraday settlement includes trades executed through 10:30.

Table 5

United States: Clearing House Division of the Chicago Mercantile Exchange (CME)

Default procedures	
Events of default	A clearing member is deemed to be in default when it fails to meet obligations within time limits set by the exchange. These obligations include margin requirements, settlement variation payments, delivery commitments, and calls for additional security deposits.
Treatment of open positions	For house positions of the clearing member, the exchange would assume control or liquidate. For customer positions, the exchange would attempt to transfer positions and funds of all customers not involved in the default.
Clearing organisation resources to cover loss	Margin deposits of the defaulting member (and customer, if one is the source of the default). Security deposit of the clearing member. Exchange seats. Surplus funds of the exchange. Security deposits of all clearing members. Assessment of clearing members.
Liquidity resources	USD 250 million line of credit. Surplus funds of the exchange.

Table 1

United States: The Options Clearing Corporation (OCC)

General background information	
Exchanges cleared for	American Stock Exchange. Chicago Board Options Exchange. New York Stock Exchange. Pacific Stock Exchange. Philadelphia Stock Exchange.
Instruments/contracts cleared	OCC clears equity options, equity index options, interest rate options and foreign exchange options. The contracts are overwhelmingly denominated in dollars, but some cross rate foreign exchange options are denominated in other currencies. Trading is predominantly floor-based.
Legal form and ownership	OCC is a for-profit corporation owned by the exchanges for which it provides clearing services.
Regulation/oversight	OCC is regulated by the Securities and Exchange Commission (SEC). It has a subsidiary regulated by the Commodity Futures Trading Commission. OCC is a self-regulatory organisation.

Table 2

United States: The Options Clearing Corporation (OCC)

Legal relationships and account structure	
Membership categories/legal relationship between clearing organisation, clearing members and clearing member clients	There is only one type of membership: clearing member. The relationship between OCC and clearing members is principal-to-principal. OCC has no legal relationship with the clients of its clearing members. The OCC has made no effort to determine the legal relationship between a clearing member and the clearing member's clients.
Account structure of clearing organisation	The OCC maintains three separate accounts for each clearing member: a house account, a customer account and a market-maker account. This structure is not optional. SEC regulations prohibit the comingling of proprietary and client property.
Account structure of clearing member	SEC regulations prohibit the comingling of proprietary and client property at each level of the clearing process. The property of individual clients may not be separately identified at the clearing members, however, if carried in omnibus accounts.
Monitoring of account structures	Monitoring of compliance is done by the exchanges rather than OCC.

Table 3a

United States: The Options Clearing Corporation (OCC)

Risk management	
Membership requirements	Financial standards: – satisfy SEC net capital requirements; – capital that is the greater of USD 1 million, a requirement based on the funds and securities owed customers, or a requirement based on indebtedness; – registered as a broker-dealer (US or Canadian); – pass an operational review.
Margin requirements	The OCC imposes margin requirements on members. Purchasers of options pay the premium in full, but performance bond or collateral requirements are placed on writers (a so-called option-style margining system). Margins are determined using TIMS, a risk-based portfolio system. OCC margins the accounts of individual clients on a gross basis. Margin requirements are recalculated daily. OCC informs members of collateral requirements no later than 05:30. Debits owed are collected at 09:00 (Chicago time) and credits are paid at 10:00.
Acceptable forms of margin	Stock (the specific underlying instruments for the option or stock pledged in bulk). Letters of credit. Any currencies in which products are traded. Government securities.
Variation margin	Positions are marked to market daily, but there is no pay-through of gains and losses. Deficits are collateralised. OCC has the authority to make intraday margin calls.

Table 3b

United States: The Options Clearing Corporation (OCC)

Risk management	
Clearing house resources	As of 31st December 1995: the OCC has capital of USD 17 million. Clearing members make required contributions to a clearing fund based upon their activity. The size of OCC's clearing fund is 7% of aggregate margin deposits (currently about USD 460 million). The OCC can make assessments of clearing members equal to their clearing fund contribution. Members can withdraw after the initial assessment.
Disaster recovery	OCC has backup operating facilities. The speed of recovery depends upon the time of day the problem arose.
Position monitoring	OCC receives matched-trade information from the exchanges for which it clears. Some exchanges provide data once per day; others submit data several times throughout the day. The process of computing margins takes about four hours. This includes the determination of theoretical values for various option series. OCC is a gross margining system. Each trade reported by the exchanges includes a code indicating whether a position was opened or closed, enabling the OCC to compute margins without additional information from clearing members.
Limits on price movements, trading and concentration	Option exchanges do not impose price limits but, if trading in an underlying stock is halted, trading in options is also suspended. OCC cannot suspend trading. The exchanges set and monitor position limits.

Table 4

United States: The Options Clearing Corporation (OCC)

Money settlements	
Settlement mechanisms	Settlement is effected through accounts at 17 authorised settlement banks.
Frequency of settlement	Settlements are effected daily. Debits owed are collected at 09:00 (Chicago time) and credits are paid at 10:00.
Types of funds	Commercial bank funds are used for settlement.
Finality of funds	Payments are made in same-day funds. Under the terms of OCC's agreement with the settlement banks, funds transfers are final at the time the entries are made to the banks' books. Balancing transfers among OCC's accounts are made by Fedwire funds transfers.

Table 5

United States: The Options Clearing Corporation (OCC)

Default procedures	
Events of default	Failure to make a payment or delivery of funds or securities is an event of default. In addition, OCC specifies events that would lead to the suspension of a clearing member, which has the same practical effect of default. (Such events include ceasing to act as a broker-dealer and operational problems.)
Treatment of open positions	House positions are liquidated. Customer positions are generally closed, and they are paid the market value. Customer positions are rarely transferred.
Clearing organisation resources to cover loss	Collateral posted by the defaulting customer (if applicable) and firm. Clearing fund deposit of the defaulting firm. Clearing fund deposits of other members. General assessment with regard to the clearing fund.
Liquidity resources	Clearing fund deposits. USD 170 million committed line of credit. Working capital cash.

ANNEX 3

MONEY SETTLEMENT ARRANGEMENTS OF CLEARING ORGANISATIONS

The first exhibit in this annex provides quantitative information on average and peak money settlements and margin deposits at each of the individual clearing organisations covered in this study. Following that exhibit are a series of charts providing an overview of the structure of money settlement arrangements for each of the respective clearing organisations. Each chart shows the various institutions or systems involved, starting at the top with the relevant interbank settlement system, the settlement bank(s), the various clearing members, non-clearing members and the clients. The charts are only stylised representations of actual arrangements, which in practice could be much more complicated, in particular if cross-border flows were to be taken into account.

The figures in the charts provide a hypothetical example of settlement flows in the domestic currency through the system for the sole purpose of indicating, where appropriate, whether incoming or outgoing flows are typically offset. The numbers are chosen arbitrarily and for illustrative purposes only. They are not meant to reflect the relative size of money flows at the different levels. The fact that the incoming and outgoing flows at the clearing house level normally add up to zero is also accidental and would typically only occur for variation margins in "futures-style" margining systems. In practice, most money settlements include initial as well as variation margin payments, cash payments for option premiums, payments of fees and, in some cases, payments relating to cash deliveries. The total of funds collected by the clearing house can, in practice, differ substantially from the total of funds paid out by the clearing house.

The timing of the various funds transfers involved in money settlements - as shown in the charts - is described in detail below the chart in each case. Where possible and relevant the timing of "finality" of the funds transfers is indicated. Final funds transfers are those that are irrevocable and unconditional.

It should be noted that the charts relate only to money settlements. In many cases clearing house participants can meet their initial margin calls by posting acceptable types of collateral (e.g. securities) to the clearing organisation. Such transactions would typically be carried out through established securities settlement systems.

Clearing organisation money settlements and margin deposits[1]

(1995, in millions of domestic currency units equivalents)

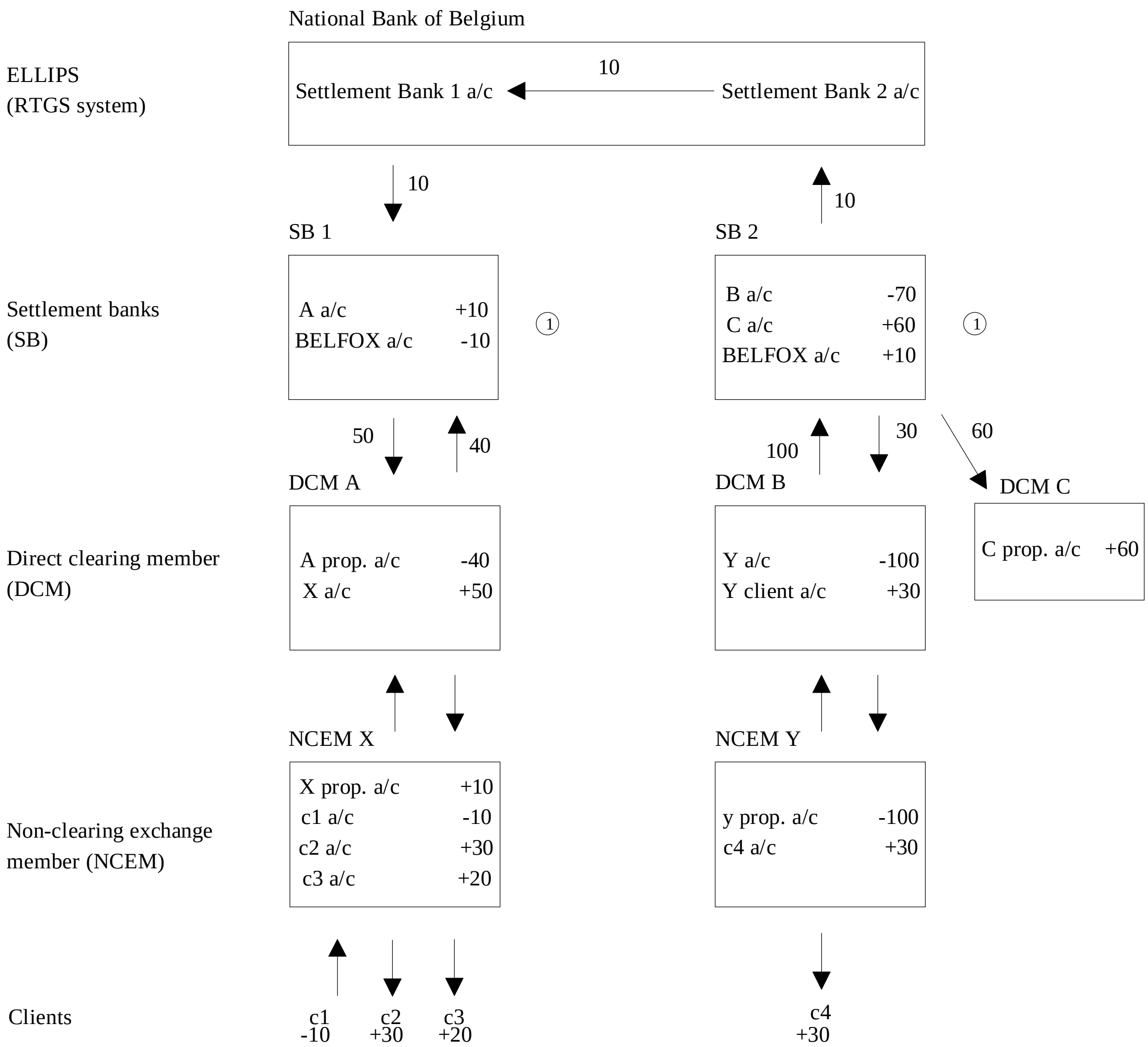
Clearing house	Average daily money settlements[2]	Peak daily money settlements[2]	Largest collect from single clearing member[2]	Total margin deposits[3]	Largest margin deposit by single member[3]	Gross or net margining	*Memorandum items:*		
							Largest ever daily money settlement[4]	*Largest ever collect from single member*[4]	*Average daily settlement in year of peak*
BELFOX	BEF 50	BEF 120	.	BEF 7,200[a]	BEF 1,400[a]	Gross	*BEF 120 (95)*	.	*BEF 50*
CDCC	.	.	.	CAD 579.8[b]	.	Gross/Net[c]	.	.	.
MATIF	FRF 696	FRF 3,494	FRF 806	FRF 11,341	FRF 857	Net	*FRF 10,958 (21/12/94)*	*FRF 1,692 (20/12/94)*	*FRF 798*
MONEP	.	FRF 250[d]	FRF 185[e]	FRF 2,700	FRF 320	Net	.	.	.
DBAG	DEM 100	DEM 800	DEM 400	DEM 3,100	DEM 246	Net	*DEM 800 (17/03/95)*	*DEM 400 (17/03/95)*	*DEM 100*
CASSA	ITL 18,000[f]	ITL 86,400[g]	ITL 40,100	ITL 327,600	ITL 42,200	Net	*ITL 140,200 (02/03/94)*	*ITL 40,100 (05/12/95)*	*ITL 17,500*
TSE	.	.	.	JPY 1,106,150	.	Net	.	.	.
TIFFE	JPY 1,915	JPY 15,984	.	JPY 155,159	JPY 14,916	Net	*JPY 15,984 (17/08/95)*	*JPY 4,745 (04/03/96)*	*JPY 3,385*
EOCC[h]	NLG 66[i]	NLG 340[j]	NLG 40[j]	NLG 2,725	NLG 650	Gross[k]	*NLG 340 (22/04/96)*	*NLG 97 (22/04/96)*[l]	*NLG 66*[i]
OM	SEK 11	SEK 486	SEK 300	SEK 4,500	SEK 600	Gross	*SEK 486 (95)*	*SEK 325*	*SEK 11*
SOFFEX	CHF 11	CHF 174	CHF 8	CHF 1,637	CHF 121	Net	*CHF 174 (18/08/95)*	*CHF 8 (04/01/95)*	*CHF 11*
LCH	GBP 585[m]	GBP 1,901[n]	GBP 306	GBP 3,800[o]	GBP 223	Net	*GBP 2,327*[n] *(16/11/94)*	*USD 933 (16/11/94)*	*GBP 620*[m]
OMLX	SEK 10[p]	SEK 114	.	GBP 102	GBP 17	Gross	.	.	.
BOTCC	USD 161	USD 570	USD 107	USD 3,900[q]	USD 264[q]	Net	*USD 1,500 (10/87)*	*USD 197 (10/87)*	*USD 235*
CME	USD 288	USD 972	.	USD 8,400[r]	USD 3,300[s]	Gross	*USD 2,500 (10/87)*	*USD 682 (10/87)*	.
OCC	USD 140[t]	USD 195	USD 45	USD 21,500	USD 493	Gross	*USD 2,000 (20/10/87)*[u]	*USD 156 (10/87)*	.

[1] Unless otherwise indicated, average daily money settlements are for 1995 and margin deposits are for 31st December 1995. [2] Variation margin settlements unless otherwise indicated (for example, may include option premiums and initial margin deficiencies or surpluses). Does not include payments associated with physical deliveries unless otherwise noted. For some clearing organisations, may include payments in currencies other than the local currency. [3] Includes required and excess margin for both proprietary and client accounts. [4] Since beginning of operation of clearing organisation (dates of occurrence indicated).

[a] 19th September 1995. [b] As of 31st December 1996. Total margin requirements on the day were CAD 342.4 million. [c] Each client sub-account is margined on a gross basis for options and a net basis for futures. Each firm and on-floor professional trader's sub-account is margined on a net basis. [d] Peak amount of funds collected. The peak amount of funds paid was FRF 520 million. [e] December 1995. [f] Daily average of funds collected. The average daily amount of funds paid was ITL 16,700 million. [g] Peak amount of funds collected. The peak amount of funds paid was ITL 73,600 million. [h] Gross premium payments. As premium receipts and payments of clearing members are netted, daily (net) payment flows are generally considered lower than indicated. Daily variation margin settlement is in a NLG 1-10 million range. [i] 1996. [j] 22nd April 1996. [k] Netting is not allowed either across or within public accounts. [l] Call on collateral in the form of securities. [m] Average daily money settlement value is the total of the amounts collected and paid; the figure includes delivery payments in respect of commodities business; however, delivery payments in respect of bonds and equities are excluded. [n] This figure is calculated on the same basis as the daily average. [o] Value after haircuts. [p] 31st October-31st December 1996. The system used to provide the data has been on-line since 31st October 1996, although OMLX has existed since 1989. [q] 13th August 1996. [r] The risk associated with these positions is lower than the numbers suggest given that both of these figures reflect performance bond holdings in excess of required levels. [s] Five largest members combined. [t] Daily average of funds collected. The average daily amount of funds paid was USD 76 million. [u] Morning settlement. The largest ever intraday settlement occurred on 19/10/87 (USD 1,200 million).

BELFOX: money settlement structure

(at day T+1, with respect to positions at the end of day T)

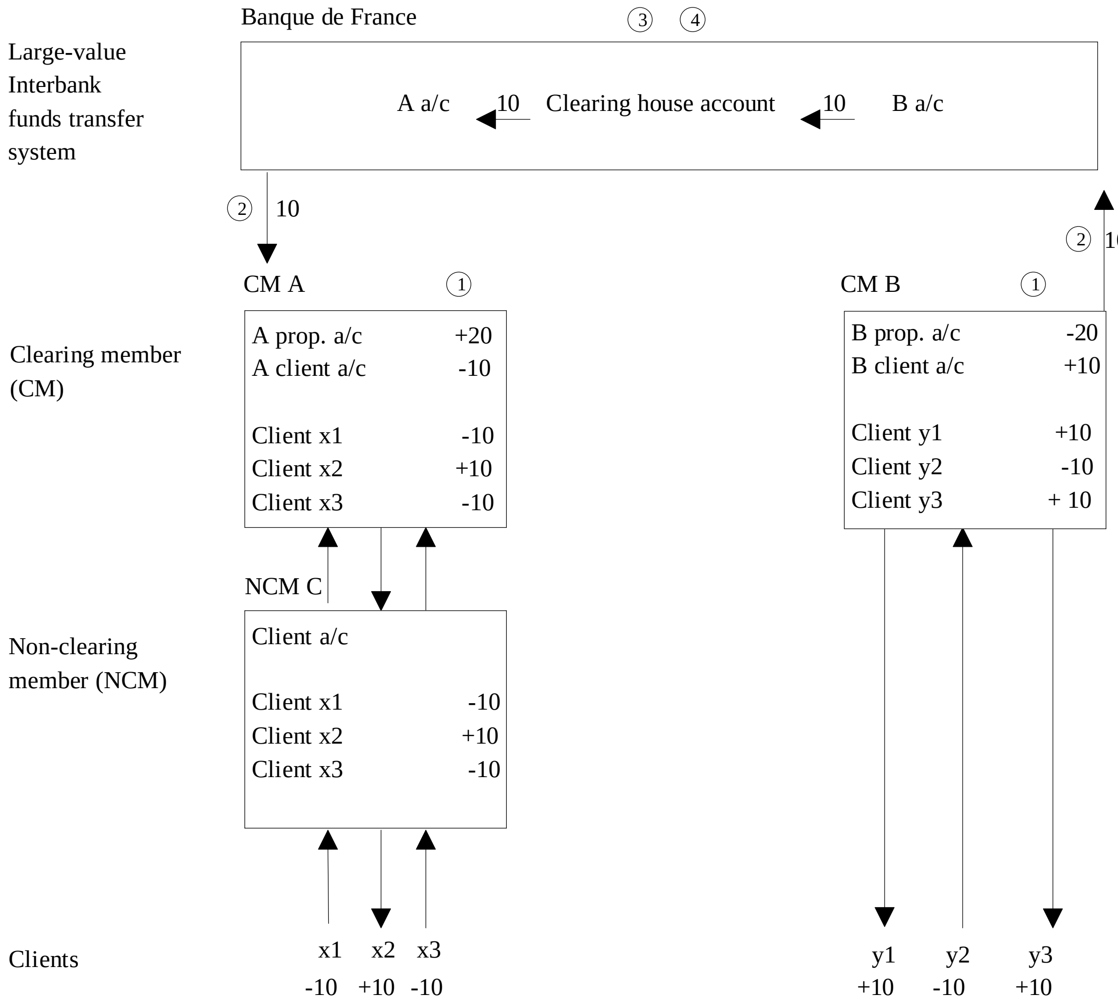


BELFOX uses a Protected Payment System involving five settlement banks. Each clearing member has to hold an account with one of these banks. The clearing house requires clearing members to pay for the client and house positions of exchange members they represent. It also requires exchange members dealing with clients (= non-exchange members) to require margin from these clients. A direct clearing member is not obliged to ask its non-clearing exchange member for variation margin. With respect to the interbank system used, the settlement banks use the net settlement system for small value payments.

① Settlement occurs normally once a day, before 09:45.

MATIF and MONEP: money settlement structure

(at day T+1, with respect to positions at the end of day T)



MATIF and SBF/SCMC have accounts with the Banque de France. A single daily cash transfer is made between the clearing houses and each clearing member. Payments between the clearing houses and clearing members are processed by transfers between their accounts at the Banque de France. In April 1997, with the implementation of TBF (the new RTGS system), settlement will occur with simultaneous final payments in central bank money once it has been established that all the accounts considered have sufficient covering funds in order to square all debit positions.

① Members of MATIF and MONEP are informed of the amounts they are to pay or be paid before the opening of the next business day.

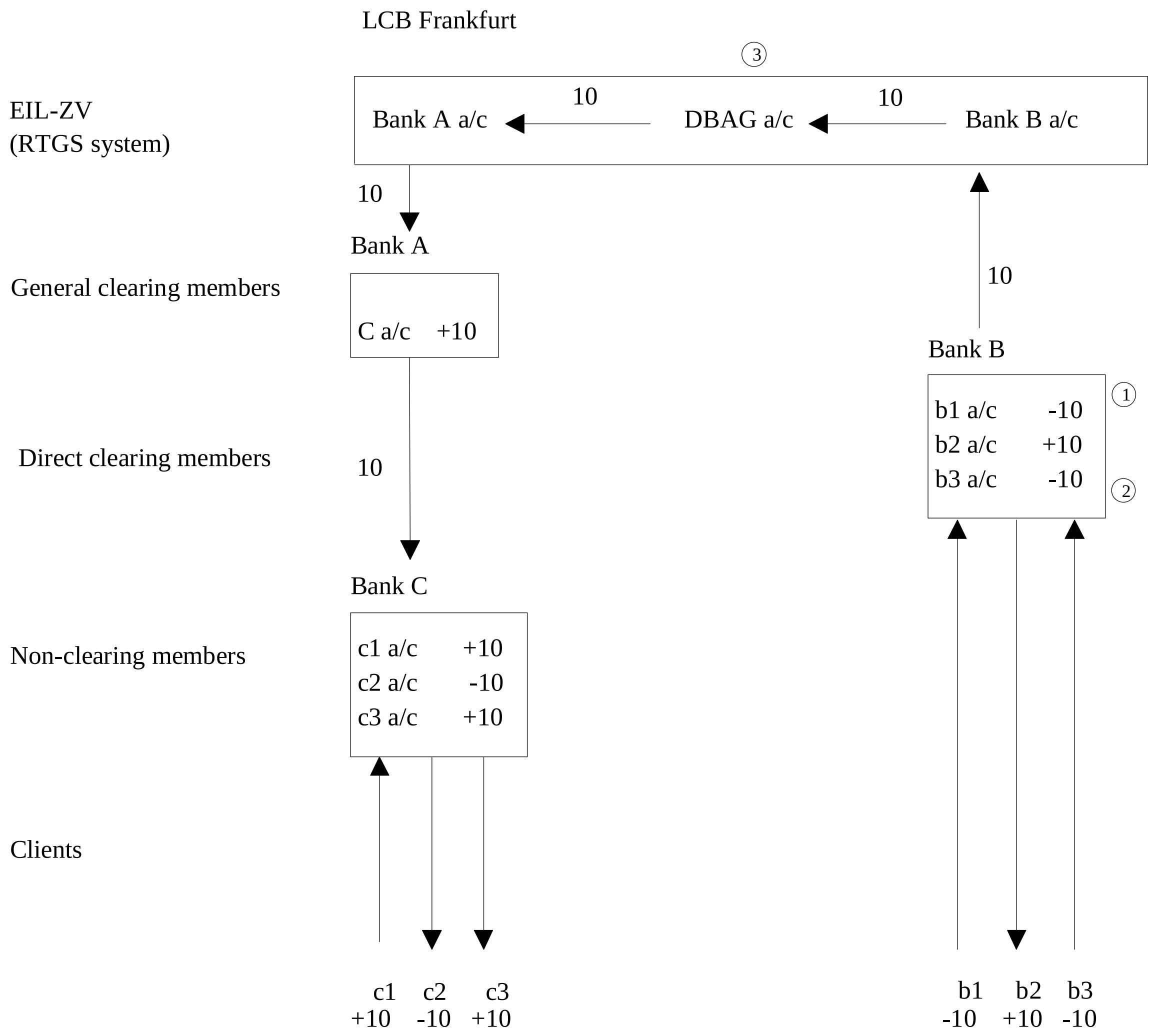
② Payments from members to MATIF or to SCMC are processed by 10:00 the next business day (T+1). MATIF and SCMC/SBF also pays clearing members through transfer from MATIF or SCMC/SBF account at the Banque de France by 10:00 the next business day (T+1).

③ Today payments to and from the Clearing House are final at the end of the settlement day (T+1) at 18:30.

④ With the implementation in France of an RTGS payment system (TBF) at the beginning of 1997, payments will be final as soon as being settled in the system, which means that finality will be obtained by the Clearing House at the beginning, instead of the end, of the settlement day (T+1).

Deutsche Börse AG (DBAG): money settlement structure for DTB transactions

(at day T+1, with respect to positions at the end of day T)



The chart shows how money settlements of Deutsche Terminbörse (DTB) positions (i.e. variation margin payments) could be effected. Deutsche Börse AG (DBAG) and all clearing members have accounts with LCB Frankfurt (Bundesbank branch). Settlement occurs with simultaneous payment at LCB Frankfurt's accounts, once it has been established that there is cover for all amounts due. Funds to cover deficits may be routed to LCB Frankfurt via the Bundesbank's express electronic intercity credit transfer system (EIL-ZV) with finality of payment upon booking.

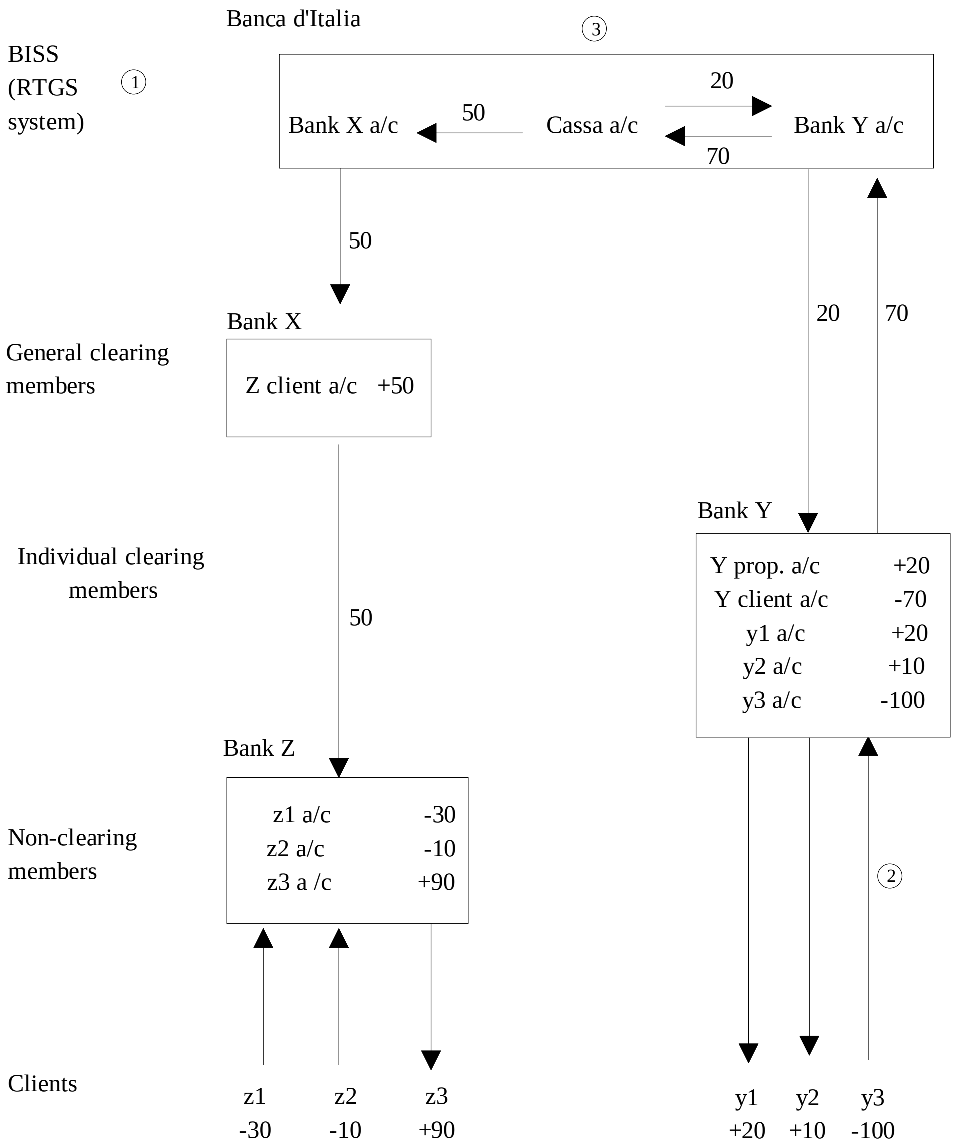
① DBAG presents a daily list of the credits and debits of all clearing members with respect to positions at the end of day T to LCB Frankfurt (Bundesbank branch) at 08:00 on T+1.

② Clearing members that owe funds must cover amounts at 09:00 on T+1.

③ Final settlement occurs with simultaneous payment of all credits and debits at LCB Frankfurt's accounts at 09:00 on T+1.

Cassa di compensazione: money settlement structure

(at day T+1, with respect to positions at the end of day T)



Payments between Cassa and clearing members are made electronically through book entries at cash accounts with Banca d'Italia.

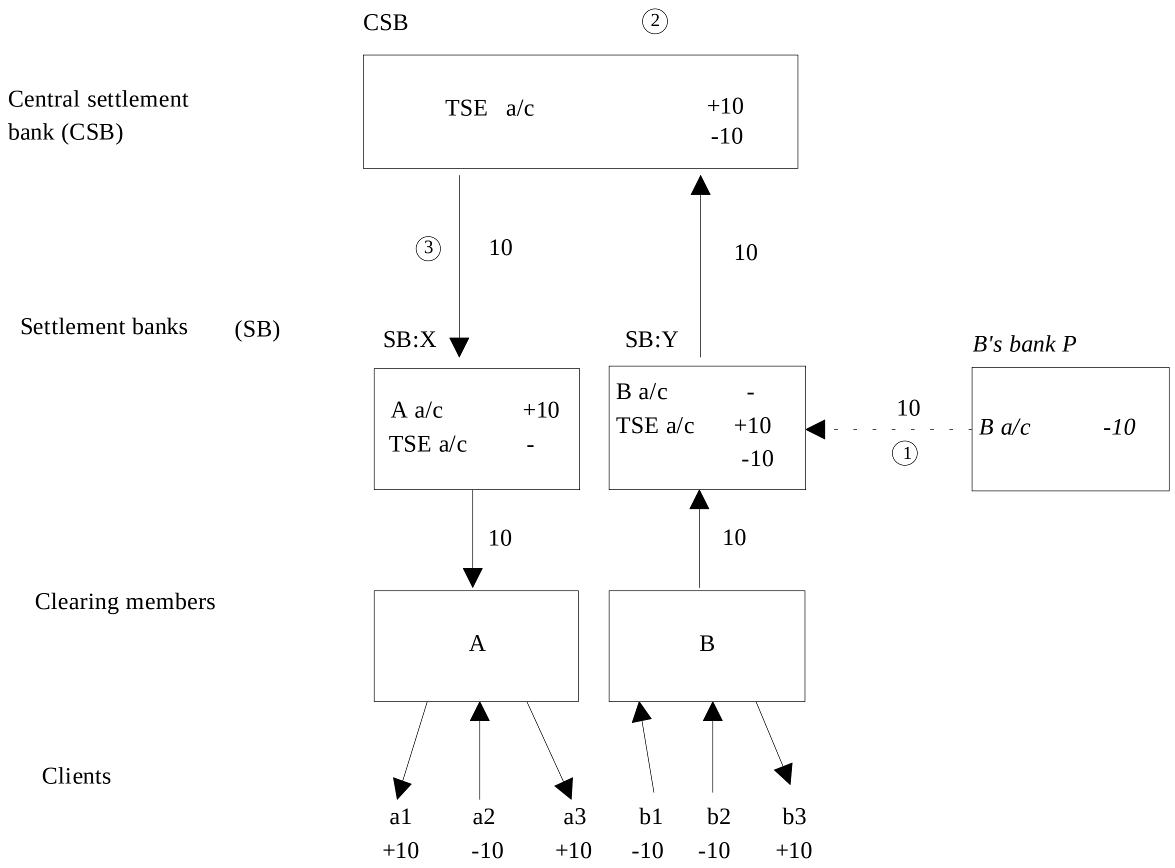
① Payments executed through the Banca d'Italia's RTGS system are immediately final.

② T+1 by 09:00.

③ Cassa collects payments due by clearing members by 09:00 and pays out to clearing members who are owed funds by noon.

TSE: money settlement structure

(at day T+3, with respect to positions at the end of day T)



Money settlements between clearing members and TSE are effected by drawing cheques on the accounts held with the 11 private settlement banks on T+3. The cheques are cleared and settled at the Tokyo Bill and Cheque Clearing House. The net positions resulting from the Tokyo Bill and Cheque Clearing House are settled through the BOJ-NET at 13:00 on the next day (in this case, T+4).

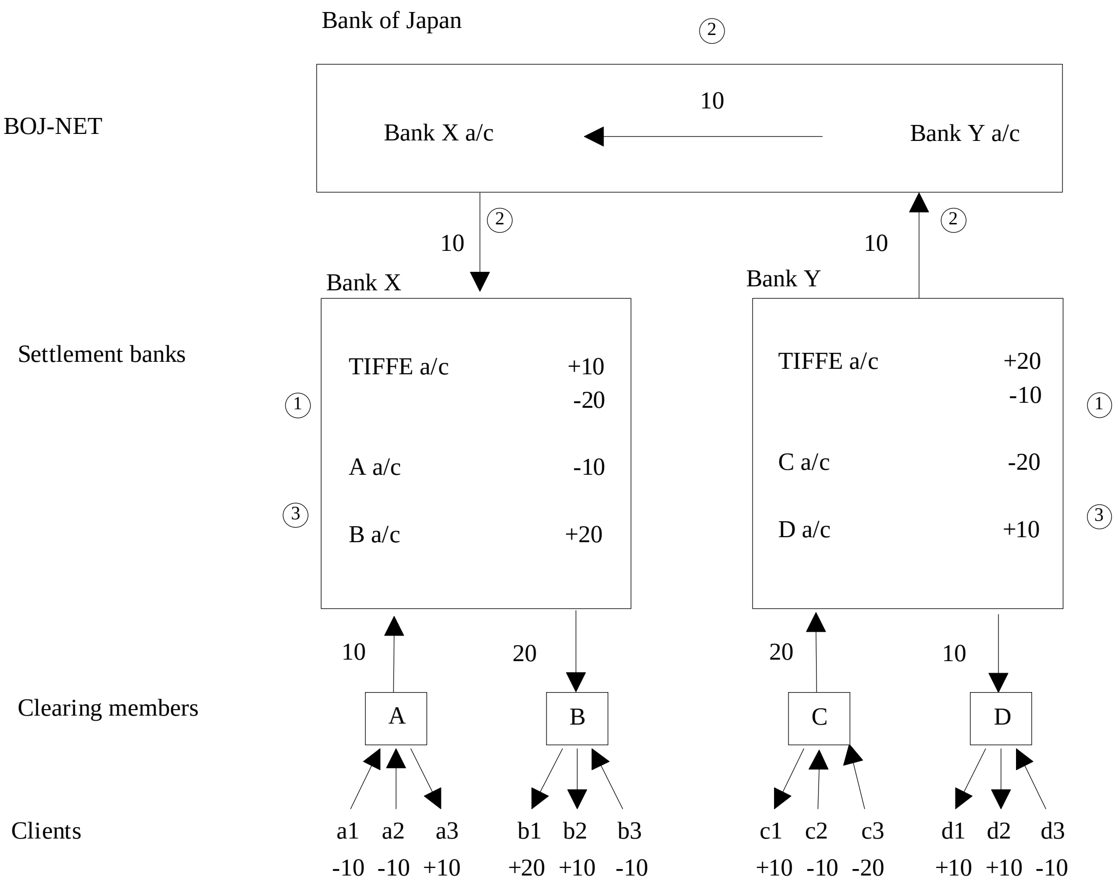
① Clearing member B brings a cheque to his settlement bank Y to pay in favour of TSE by T+3 (15:00).

② TSE deposits a cheque with the "central settlement bank" to transfer its funds from settlement bank Y to the "central settlement bank" by T+3 (15:00).

③ TSE pays out to clearing member A by depositing a cheque with settlement bank X by T+3 (15:00).

TIFFE: money settlement structure

(at day T+1, with respect to positions at the end of day T)



Money settlements between clearing members and TIFFE are effected through book-entry transfers on accounts at the private settlement banks. Payments between clearing members and TIFFE become final when the settlement bank credits and debits their accounts. Transfers between settlement banks to adjust TIFFE's account at each settlement bank are carried out through BOJ-NET.

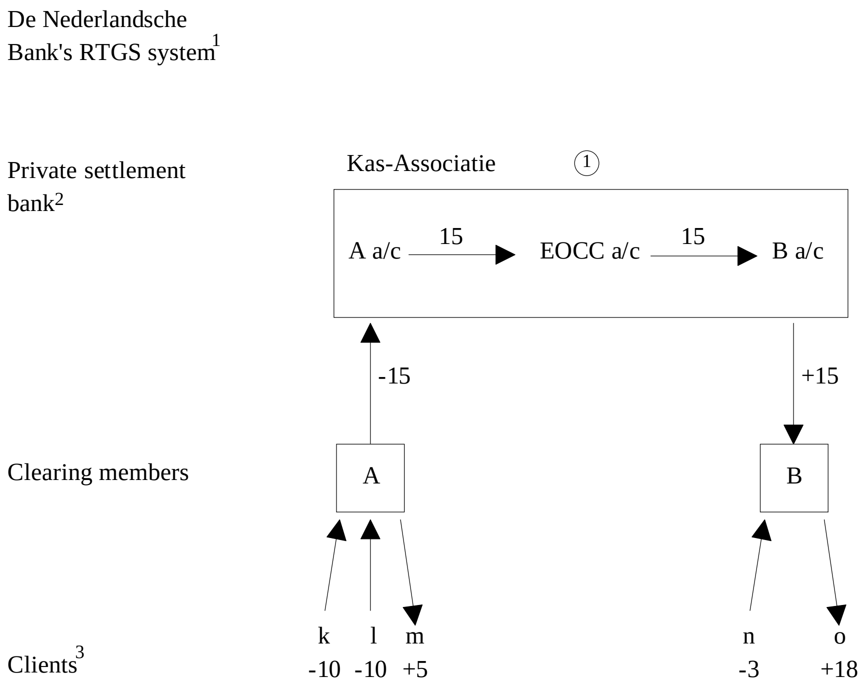
① Clearing members A and C are obliged to pay in to TIFFE by 11:00 on T+1.

② The interbank funds transfers become final at 13:00 on T+1 (designated settlement in BOJ-NET).

③ TIFFE pays out to clearing members B and D by 14:00 on T+1.

EOCC: money settlement structure for premiums and variation margins

(at day T+1, with respect to positions at the end of day T)



[1] Clearing members being credit institutions (or their parent companies being credit institutions) generally hold their overnight balances at De Nederlandsche Bank. In practice, clearing members therefore would appear to shift their settlement balances back and forth between the settlement bank and De Nederlandsche Bank using the latter's RTGS system.

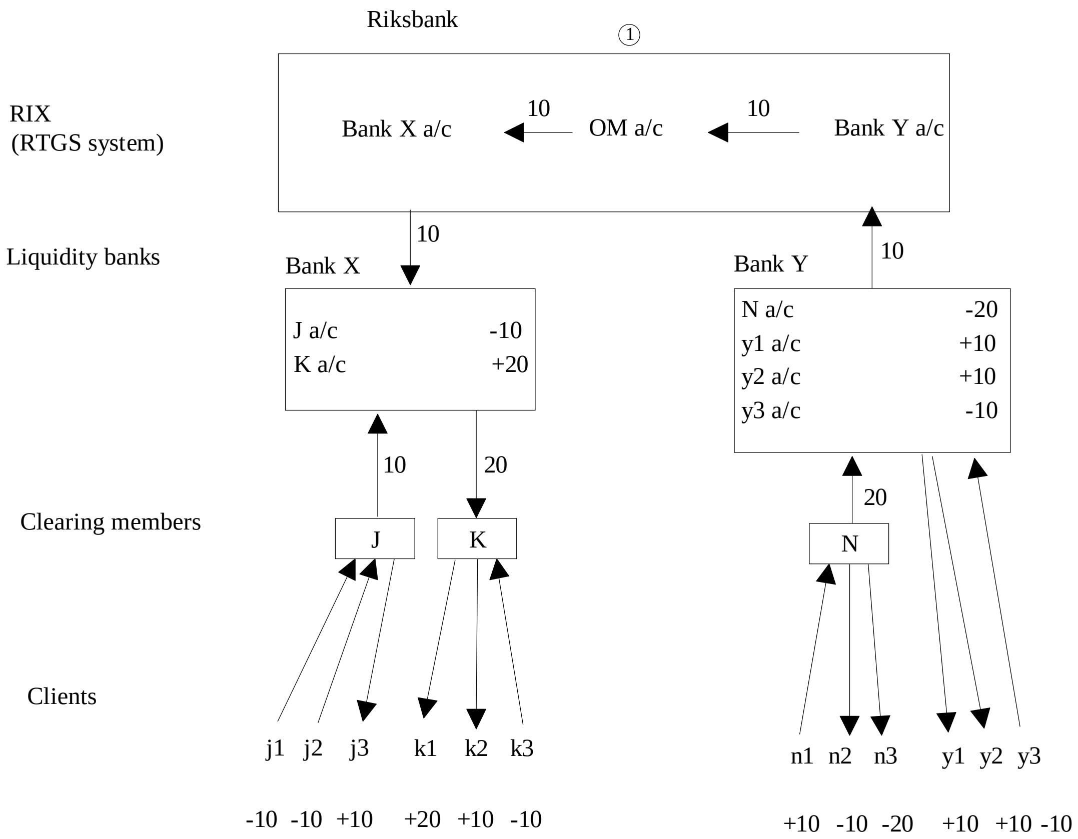
[2] Money settlement takes place at a private settlement bank (Kas-Associatie) where both the EOCC and all clearing members hold settlement accounts. Since the EOCC uses only one settlement bank, the EOCC does not have to rebalance its settlement accounts through De Nederlandsche Bank's RTGS system. The EOCC does not hold any overnight balances in its settlement account.

[3] Clients can be either traders or public order members.

① Settlement takes place at 09:00.

OM: money settlement structure

(at day T+3, with respect to positions at the end of day T)

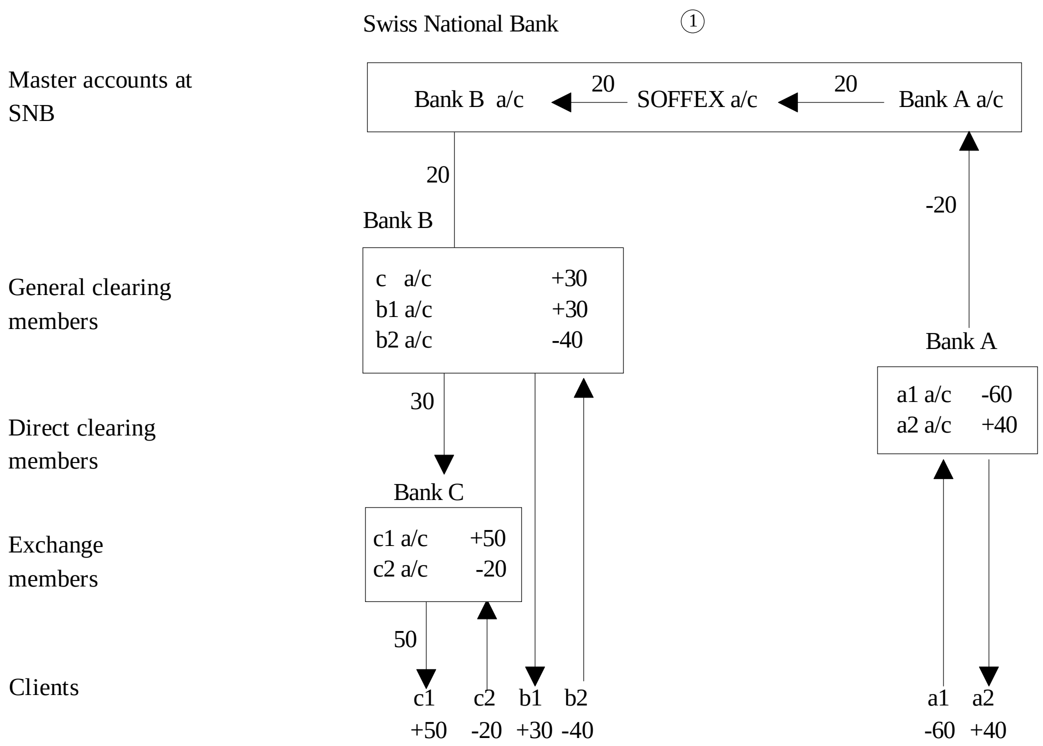


Settlement is made in the Riksbank's RTGS system (RIX), in which OM has an account solely for this purpose.

① All transfers to and from OM's account are settled simultaneously at 11:30.

SOFFEX: money settlement structure

(at day T+1, with respect to positions at the end of day T)



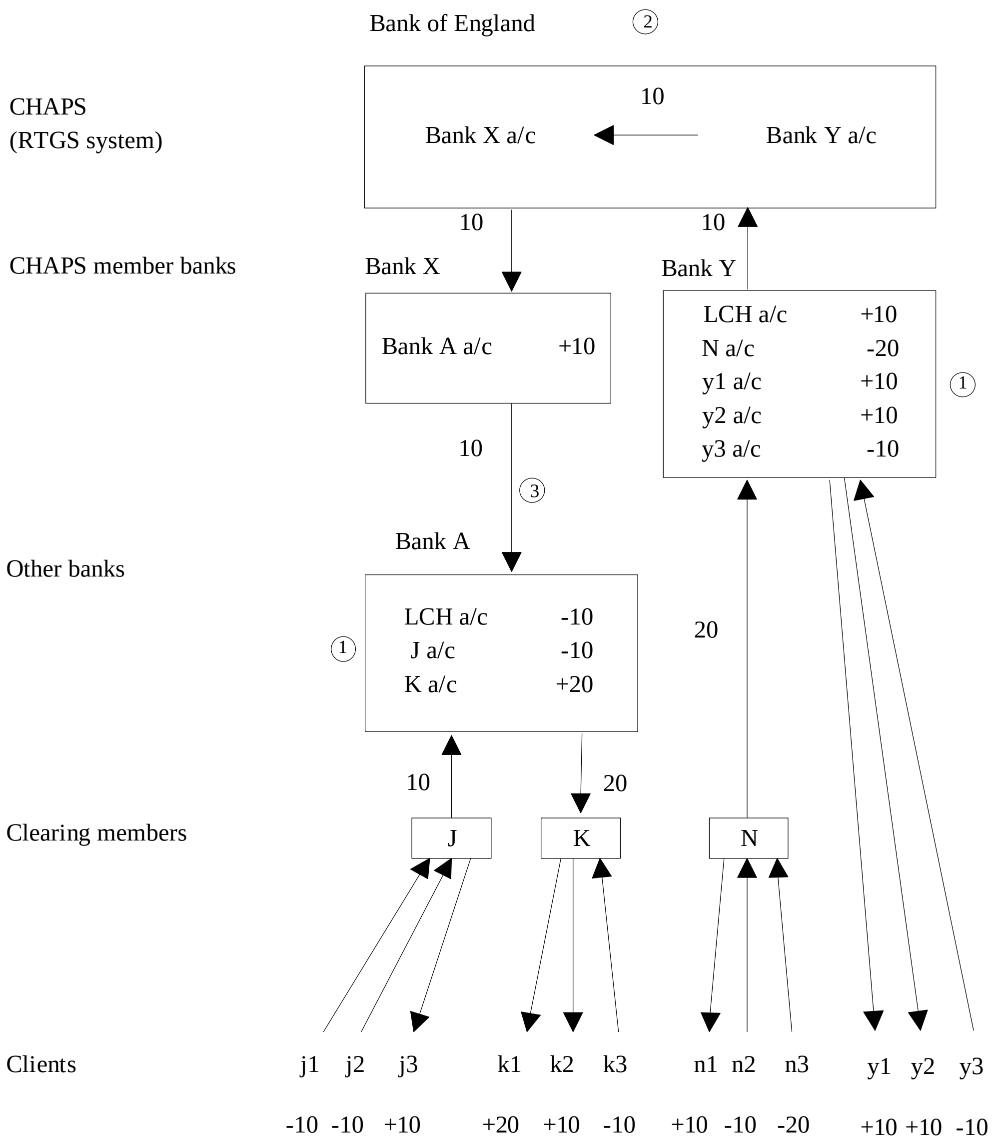
The chart shows SOFFEX's money settlement structure which uses the master accounts at the SNB. Note that the cash payments resulting from delivery-versus-payment transfers or from SOFFEX's money market transactions are processed via the SIC accounts at the SNB.

The cash payment related to one clearing member - one net payment resulting from variation margins, premiums, fees, fines, cash settlements and interest - is debited/credited on the member's cash account at SOFFEX between 06:00 and 07:00.

① The resulting balance, after the cover of margin requirements, is processed through the SNB master accounts. The SNB provisionally credits and debits the master accounts of SOFFEX and those of the clearing members, the settlement being final if and only if there are enough funds in all master accounts. SOFFEX makes payments to the members at about 07:00 The members' payments in favour of SOFFEX are due one hour before the next trading day begins.

London Clearing House: money settlement structure

(at day T+1, with respect to positions at the end of day T)



The chart shows the different ways in which clearing members may be involved in the sterling settlement system. Clearing members J and K use a PPS (protected payment system) bank which is not a member of the interbank settlement system, CHAPS. Clearing member N uses a PPS bank which is a member of CHAPS. Bank Y is itself a clearing member, as well as being a CHAPS member, and has a direct relationship with non-clearing members and clients.

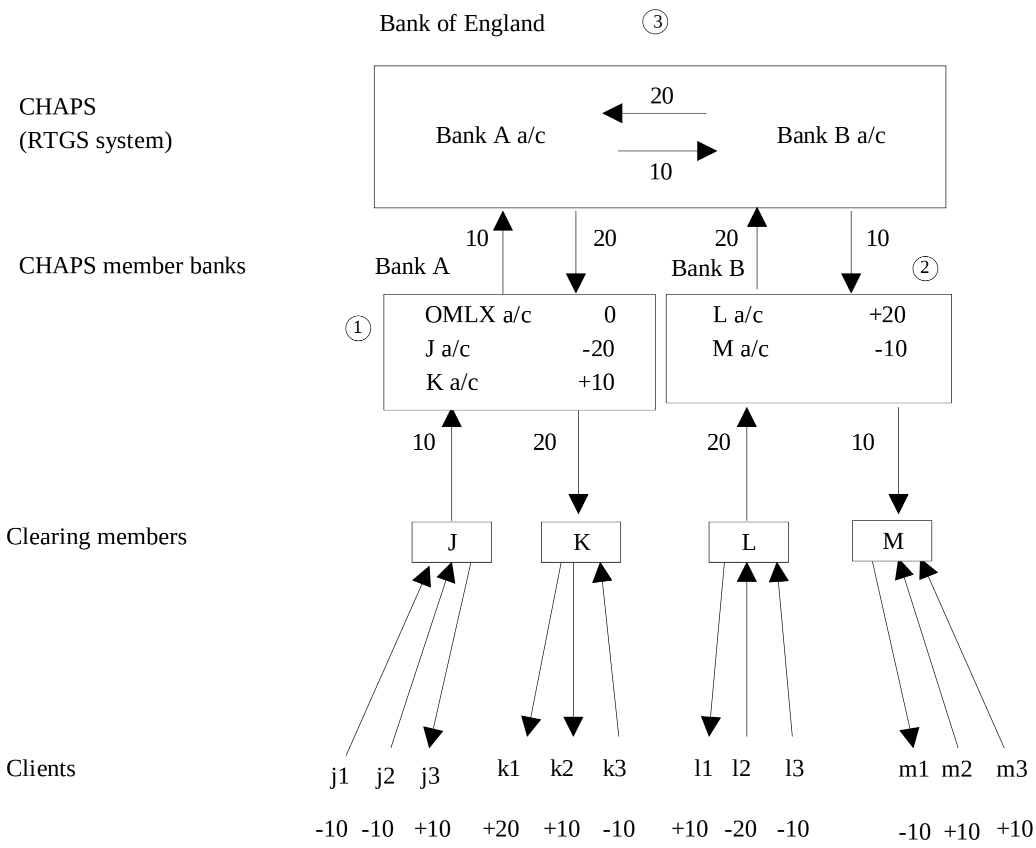
① Transfers to LCH's accounts with banks A and Y are promised by the banks by 10:00 (i.e. the banks undertake to make the payment on the same day). The actual transfers are made when the bank chooses, provided this is before close of business. Transfers from LCH's accounts with banks A and Y are also made at a time of the bank's choosing following payment instructions given by LCH soon after 10:00.

② The interbank transfer from bank Y to bank X takes place, with finality, when bank Y issues payment instructions through CHAPS or the payment is settled across accounts at the Bank of England.

③ Bank X credits the account of bank A as soon as it becomes aware of the receipt of funds from bank Y.

OMLX, The London Securities and Derivatives Exchange: money settlement structure

(at day T+1, with respect to positions at the end of day T)



The chart shows how money settlements of variation margin in sterling are effected for OMLX, The London Securities and Derivatives Exchange. OMLX uses a network of 12 Protected Payments System (PPS) banks; clearing members are required to hold accounts with one of these but OMLX holds accounts at only three. Transfers of funds to, or from, OMLX's account at Bank A are made by intra-branch transfer or interbank transfer if the clearing member does not hold an account at the same bank. Transfers to OMLX's account with Bank A are promised by Bank A and Bank B by 11:00 (i.e. the banks undertake to make the payment on the same day). The actual transfers are made when the bank chooses, provided this is before the close of business. Transfers from OMLX's account with Bank A are made at the time of the bank's choosing, following instructions from OMLX

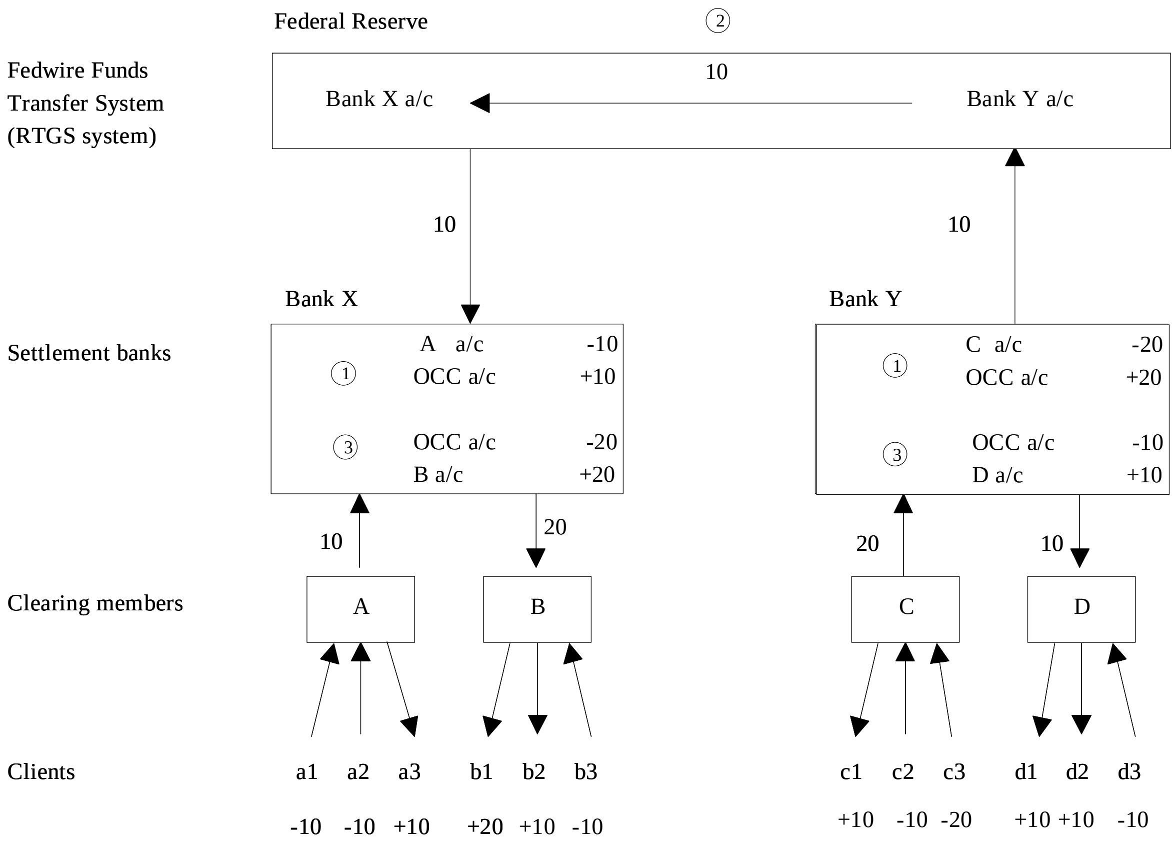
① Bank A is one of the three PPS banks at which OMLX holds an account. Payments to, and from, clearing members who hold their settlement account at Bank A are effected by an internal transfer of funds across accounts at Bank A. OMLX accounts at the other PPS banks also have to be balanced.

② Bank B is one of the nine PPS banks at which OMLX does not hold an account. Payments to, and from, clearing members who hold their settlement account at Bank B are effected by an interbank transfer from Bank A to Bank B.

③ The interbank transfer from Bank B to bank A takes place, with finality, when Bank B issues payment instructions through CHAPS or the payment is settled across accounts at the Bank of England.

The Options Clearing Corporation: money settlement structure

(at day T+1, with respect to positions at the end of day T)



The Options Clearing Corporation uses a money settlement system involving commercial banks. Clearing members choose from a list of approved settlement banks. OCC has accounts at all of these banks, too. Settlements occur in a two-step process. Debits to clearing member accounts are made first in order to fund OCC's account; credits are posted an hour later. Under the terms of OCC's agreement with its settlement banks, funds transfers are final at the time entries are made to the settlement banks' books. Fedwire transfers are final when they occur. Timing related to the availability of funds to customers is a contractual matter between clearing members and customers.

Instructions are provided to banks through a computer-to-computer communication system, typically by 02:30 (Chicago time), and banks can respond through the system to authorise debits.

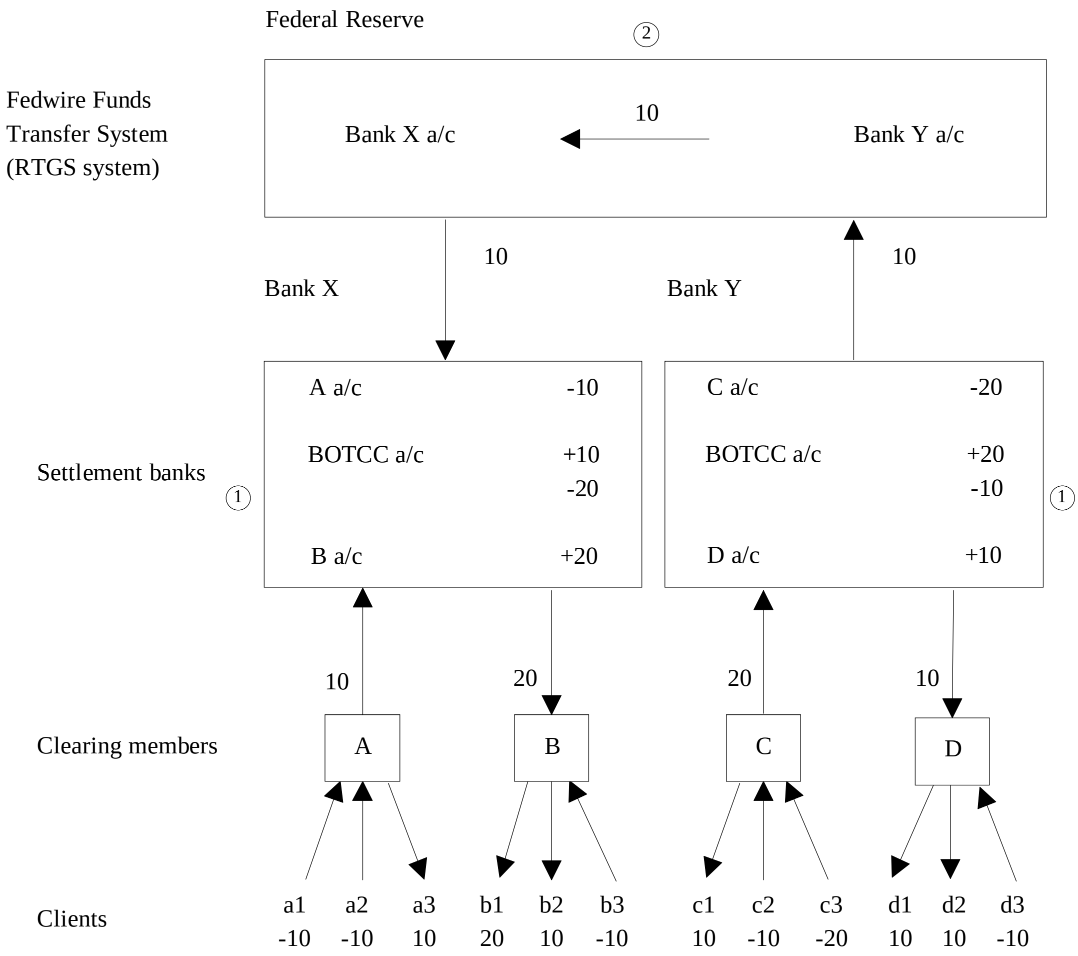
① By 09:00 banks have debited clearing member accounts and credited OCC's account.

② OCC rebalances funds among the settlement banks using Fedwire transfers between 09:00 and 10:00.

③ Credits due to clearing members are posted to their accounts at 10:00.

Board of Trade Clearing Corporation:
money settlement structure

(at day T+1, with respect to positions at the end of day T)



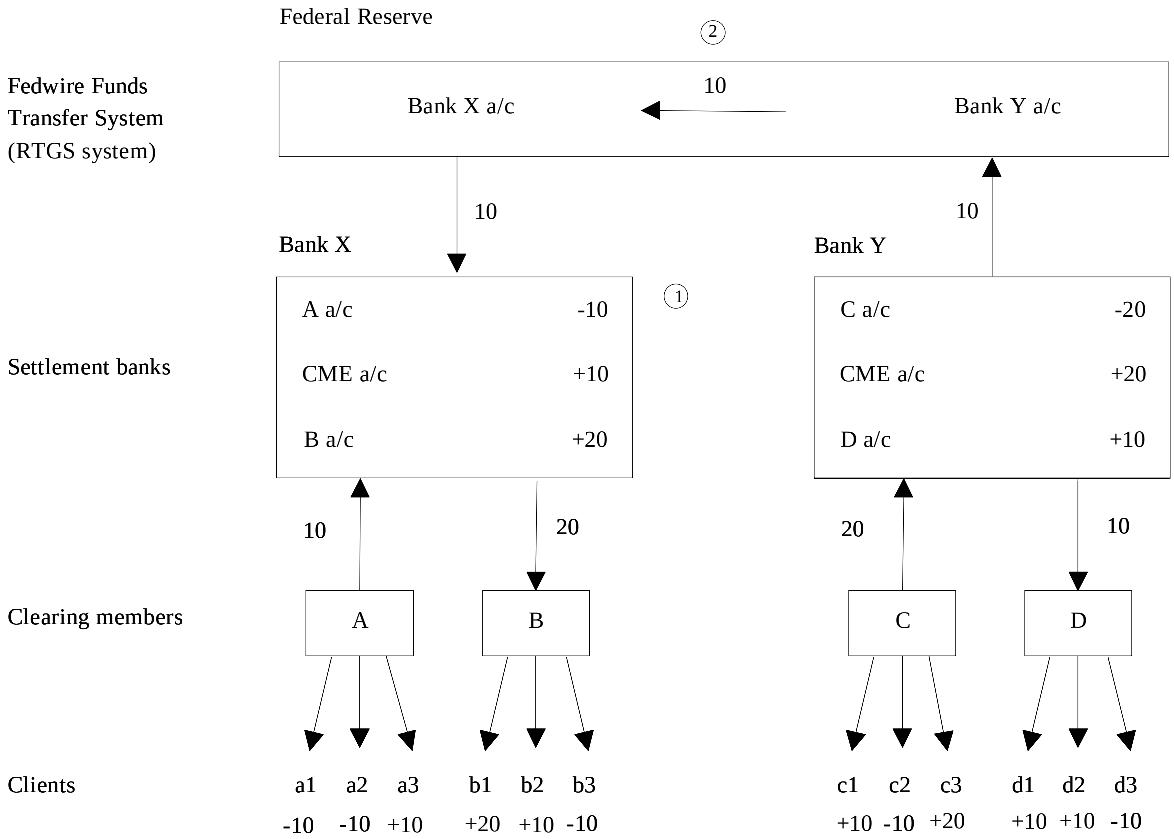
The Board of Trade Clearing Corporation uses six settlement banks. Clearing members must have an account with at least one of the settlement banks. Settlement between the settlement banks occurs by Fedwire funds transfers.

① BOTCC notifies clearing members of their intraday variation settlement obligations at 14:00 Chicago time (CT) Clearing members that owe funds have until 15:00 CT to make payment to BOTCC's accounts at the settlement banks. BOTCC pays clearing members that are owed funds 80% of the amount owed by 15:00 (BOTCC holds back 20% of net intraday gains until final settlement.) BOTCC notifies clearing members of their final settlement obligations at 03:00 CT. The settlement banks debit and credit the accounts of clearing members by 06:40 CT. Payments are final upon transfer across the books of the settlement bank.

② Balancing transfers for the BOTCC's accounts at the different settlement banks occur between the settlement banks over Fedwire and are final. Transfers for the intraday variation margin call occur shortly after 15:00 CT while Fedwire is still operating. Transfers for the final variation margin call occur after Fedwire opens at 07:30 CT.

Chicago Mercantile Exchange: money settlement structure

(at day T+1, with respect to positions at the end of day T)



The Chicago Mercantile Exchange uses a system in which settlement banks confirm to the CME that they will make payments on behalf of the clearing members for which they provide settlement services. These confirmations occur before the opening of trading and before the opening of the Fedwire funds transfer system. Timing related to availability of funds to customers is a contractual matter between clearing members and customers.

① By 06:40 settlement banks provide confirmation to CME that its requests to debit clearing member accounts will be honoured. Settlement banks begin the process of posting debits and credits to accounts no later than 06:40, and settlement is deemed to be effected, final and irrevocable at that time (whether or not the bank has completed the process of posting such debits and credits). Settlement banks make funds credited to accounts of the CME and clearing members available for withdrawal at the settlement time if the bank is open for business, or at the time the bank next opens for business.

② Balancing transactions among the CME accounts at the settlement banks occur after the opening of Fedwire (currently 07:30 Chicago time) and are final when they occur.

ANNEX 4

ARRANGEMENTS FOR PROTECTING CLIENT POSITIONS AND ASSETS

Although clearing houses generally do not recognise the existence of any counterparty relationship with clients, an important function of many clearing houses is the protection of clients. Clearing houses establish procedures or implement regulatory policies for the handling of client positions and funds, and their rules often include separate margin policies applicable to clients. Many aspects of clearing houses differ from country to country, reflecting prevailing market practices and legal regimes. Arrangements for protecting clients are no different. Indeed, greater diversity is probably found in this area than in any other aspect of clearing houses. This annex provides an overview of several important issues related to client protection, and it is not intended to be an exhaustive treatment.

Segregation and accounting issues for client and house positions

A common protection for clients used by many regulatory regimes is the requirement that client positions be segregated, accounted for separately from the clearing member's house positions, or both. Segregation usually entails the physical separation of client positions on the books of both the clearing house and the clearing member. Some regimes may not require segregation but may nonetheless call for a separate accounting of client and house positions. As an example of the distinction between separate accounting and segregation, the clearing member might be required to maintain separate records of client and house accounts but these positions might be carried in a single commingled account at the clearing house.

Segregation or separate accounting of positions can be an important tool protecting clients if the firm carrying their positions fails. In that event, positions in house accounts would typically be liquidated by the clearing house. Segregation or separate accounting makes the identification of client positions easier and more reliable and thereby facilitates the transfer of a defaulting clearing firm's client positions to other clearing firms in countries that handle client positions in that manner.

Segregation and accounting issues for assets supporting client and house positions

In the same manner that client positions are often segregated or accounted for separately from house positions, client assets are also segregated or accounted for separately from house assets in many countries. Regulations in this area address how firms handling client assets must treat them. For example, regulations may specify that one client's assets cannot be used to meet another client's margin requirements; thus, if one client's margin account is deficient, excess margin in another client's account cannot be used to meet that deficit. It is the responsibility of the clearing firm to provide the needed collateral if a client's account is undermargined, or to close out the client's position.

In countries that require the segregation of client assets at the clearing house, client assets may be held in an account that is separate from the account holding house assets. Cash and other assets posted as collateral are generally deposited with, or held in custody by, commercial banks. Although assets posted by individual clients may be commingled physically in this custody account, on the clearing firm's books they are accounted for separately. The clearing house has control over movements of funds and collateral out of the custody accounts. This segregation offers protection to clients because it provides for a clear identification of client assets and can facilitate the transfer of client assets to other clearing members in the event of a clearing firm's failure. Furthermore, because the clearing house usually controls movements of collateral into and out of the accounts, the ability of the clearing member to improperly use client assets is limited.

Gross versus net margining

In the account structures found in many clearing systems, clients do not deal directly with a clearing member. These tiered relationships have implications for the ways in which some risk management tools are implemented. A good example relates to the posting of collateral (initial margin requirements) as a way to mitigate the replacement cost risk that the clearing house faces when it substitutes itself for counterparties in the clearing process. The clearing house establishes minimum collateral requirements both for clearing members and for their clients. It also requires certain portions of the collateral posted by clients to be passed through by firms so that it can be held directly by the clearing house.

Clearing houses have adopted two different approaches to this process, known as gross margining and net margining. The possibility for these two approaches arises because clearing houses generally do not recognise individual clients. Thus, when a clearing firm is passing collateral through to the clearing house, one approach is to pass through the collateral required to support the net client positions. (That is, if one client has two long positions and another client has one short position, the risk to the clearing house is one long position because it does not recognise the individual clients.) Alternatively, a clearing house can require that collateral be posted with it reflecting the gross positions carried in the client account. In either of these systems, the same amounts of collateral would be required of clients. The key difference between them is where the collateral is held: in a net margining system some of the collateral posted by clients is held by the firms carrying the accounts. In a gross margining system, all of this collateral is passed through and held at the clearing house. (In either a gross or a net margining system, firms can always require collateral above the minimum levels set by the clearing house, and this collateral would be held by the firm.)

Both net and gross margining systems have advantages and disadvantages. A gross margining system gives the clearing house direct control over larger amounts of collateral than does net margining. Such a system may provide more client protection if one believes the clearing house would be more careful in its handling of client funds than the clearing firm. Gross margining comes at the cost, however, of greater information demands. Individual trades must be identified as to whether they are opening or closing positions in order for the clearing house to be able to calculate gross positions and gross collateral requirements.[1] This sometimes slows down the calculation of collateral requirements relative to a net margining system.

Differences in acceptable margin collateral

As part of their risk management procedures, clearing houses specify the types of collateral that can be used to meet initial margin requirements (and also required contributions to guarantee funds). This collateral usually has very low credit risk and is highly liquid. For example, it might be limited to cash or specific types of government securities. Clients are required to post margin collateral with their clearing firms, a portion of which is passed through to the clearing house. Clients would generally be required to post the types of collateral acceptable to the clearing house. However, several clearing houses allow clients to post broader ranges of assets as collateral with the clearing firms than they themselves will accept. For example, clients might be allowed to post government securities from a broader set of countries with their clearing firm than the clearing house accepts. If clients elect to post collateral that the clearing house itself does not accept, the clearing firm must substitute acceptable collateral for the portion that is passed through to the clearing house.

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1 Some clearing houses require trade data transmitted to them from the exchange to indicate whether trades open or close positions. In other systems, this information is reported separately after the trade has occurred.

ANNEX 5

MECHANICS OF MARGINING SYSTEMS FOR FUTURES AND OPTIONS

Both futures and options can be margined in varying ways. Two different types of system have evolved for each of these products: futures margining systems are distinguished by the way they handle current exposures, that is, whether these exposures are returned to zero by payments of cash or whether they are collateralised. These two types of futures margining system are sometimes referred to as cash and non-cash clearing systems. Options margining systems differ as to whether the premium is paid upfront (that is, when the option is purchased) or paid over the life of the option. The former system in which the premium is paid upfront is often referred to as options-style margining, and it is the most prevalent type of margining system used for options. The other system for margining options - paying the premium over the life of the option - is often referred to as futures-style margining because of the cash payments that go back and forth between the option seller and purchaser as positions change in value, just as cash payments go back and forth between buyers and sellers of futures contracts in a cash clearing system. Futures-style margining has been developed for use with options on futures contracts to enable market participants with a portfolio of these contracts and their underlying futures to match cash flows from margin payments (a variation margin payment due on a futures contract can be matched with a variation margin payment receivable on an offsetting option on the future, for example).

Any margining system must provide protection to the clearing house from the current credit exposure that it faces vis-à-vis clearing members as well as from the potential for these credit exposures to increase in the future. All margining systems require contract holders to post collateral to cover potential future exposures (generally measured over one business day). The systems differ in their approach to the coverage of current credit exposures. In a cash clearing system for futures or a system for options in which the premium is paid over the life of the contract, current exposures are returned to zero each day by marking positions to market, by collecting losses from clearing members whose portfolios have a negative market value, and by paying out gains to clearing members whose portfolios have a positive market value. A non-cash clearing system for futures or a system for options in which the premium is paid upfront also marks positions to market each day, but current exposures cumulate and are collateralised.

The summary below explains how a clearing house would margin either a futures contract or an option contract under these systems.

Futures contracts

Cash clearing. When two parties enter into a futures contract, both the seller of the contract and the buyer of the contract are required to post collateral to cover the potential future credit exposure that they pose to the clearing house. This collateral is often referred to as initial margin. Positions are marked to market daily, and these current exposures are extinguished by cash payments (known as variation margin) from clearing members holding losing positions to the clearing house and from the clearing house to clearing members holding profitable positions.

Non-cash clearing. The mechanics for non-cash clearing differ from those for cash clearing with respect to the treatment of current exposures. Positions are marked to market daily in the non-cash system, as in the case of the cash system, but no variation margin payments are made. Instead, current exposures are collateralised. Because of the zero-sum nature of a futures contract, if collateral requirements for a long position go up, for example, those for a short position will go down, but there is no pay-through of gains and losses as in the cash clearing system. One position simply has higher collateral requirements and the other position has lower requirements. Excess collateral can be withdrawn in some (but not all) non-cash systems, but this typically does not occur automatically (in contrast to a cash clearing system). The clearing house also protects against potential future exposures by requiring the posting of collateral; this collateral is in addition to that required to cover current exposures, however.

Option contracts

Premium paid upfront. In this margining system, the purchaser of an option pays the premium for the option when the deal is struck. The purchaser poses no further risk to the clearing house after this payment. (An exception is if the purchaser elects to exercise the option, in which event the clearing house may need to take steps to ensure its performance.) The seller of the option, however, has a continuing obligation to perform, and the clearing house must protect itself from this exposure. The seller of the option posts collateral to cover the potential future exposure from the position. The position is marked to market daily, and the current exposure is collateralised.

Premium paid over the life of the contract. In a margining system in which the premium is not paid at the initiation of the contract, both the purchaser and the seller of the option contract post collateral to protect the clearing house against potential future credit exposures. Both sides of the contract are marked to market daily; cash payments, or variation margin, are used to reset current exposures to zero. The premium is paid to the seller of the contract over time in the form of the daily variation margin payments through the life of the contract and on final close-out.

An example helps illustrate this point. A market participant sells a December short sterling option for 0.20, tick size for the contract is 0.01, and the value of a tick is £12.50. Given the daily price moves shown below, the series of variation margin payments and receipts by the seller of the option would be:

Day	Trade price	Closing price	Price movement	Variation margin	Cumulative variation margin
1	0.20	0.19	- 0.01	12.50CR	12.50CR
2		0.21	+ 0.02	25.00DR	12.50DR
3		0.20	- 0.01	12.50CR	0.00CR
4		0.15	- 0.05	62.50CR	62.50CR
At expiry the option has a value of 0.14 and is exercised					
5		0.14	- 0.01	12.50CR	75.00CR
Total variation margin over duration of position 75.00CR					

If the option is exercised on day 5, the buyer pays the seller the option value of £175.00 = (14*£12.50*100). The total amount paid to the seller is, therefore, £250.00 = (£175.00 + £75.00), the agreed premium for the trade of 0.20*£12.50*100.

ANNEX 6

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