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Clearing and settlement in the EU: structures and policy options

- The EU's clearing and settlement industry in its current form is fragmented along national lines and inadequate for the single EU financial market. As a consequence, EU companies face unnecessarily high costs of raising capital.
- The solution to the problem is impeded by the highly complex structural issues involved.
- The first article in this edition disentangles the fundamental concepts and problems associated with clearing and settlement and presents the various initiatives currently being developed at EU level.
- It argues that, save for establishing a level playing field, wide disagreement over an optimal organisation of the industry prevails.
- Nevertheless, common, harmonised standards, interoperability and competition between service providers should be the principles guiding the re-organisation of the clearing and settlement industry.

Article contributed by **Karel Lannoo**, Chief Executive Officer, and **Mattias Levin**, Research Fellow, The Centre for European Policy Studies, Brussels. Guest authors express their own opinion, which is not necessarily that of Deutsche Bank Research.



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Interoperability and interlinking: the way forward for the C&S industry

- The second article in this edition emphasises that, in working towards an optimal clearing and settlement landscape, policy makers should avoid prescriptions based on a certain architecture or model, e.g. horizontal over vertical integration or vice versa.
- Realisation of efficiency gains should be achieved by means of market-driven solutions, with intervention by public authorities kept at a minimum.
- To overcome inefficiencies in the cross-border equities business the establishment of a cross-border operating organisation is required. A Central Securities Settlement Institution, connecting and interlinking domestic systems, will boost cross-border efficiency while retaining the benefits of existing domestic structures.
- Free, non-discriminatory access and egress at all parts of the value chain are necessary to prevent domestic operators from exploiting monopoly positions.

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Clearing and settlement in the EU: structures and policy options

Introduction

The process of clearing and settlement has become the focus of much attention during the last two years. While everyone agrees that the current structures – largely shaped along national lines – are inadequate for the yet-to-come integrated European capital market, there is little consensus on what future shape clearing and settlement structures should take. This was evidenced in late August this year, when the ECB and CESR released the replies to their survey of European clearing and settlement structures. One of the few things respondents could agree upon was that the process of restructuring the European systems should be largely led by the market, not by regulators.

Why all this attention? Most clearing and settlement systems developed as utilities within the national context, in close cooperation with the national stock exchanges or central bank. While being efficient within a national context, they are less able to handle intra-system and cross-border trades, resulting in higher transaction costs. However, as local monopolies, the interests to resist change and defend local power are high. The end result is continuing fragmentation of European capital markets and higher costs of raising capital.

How can this be solved? The structural issues in clearing and settlement are highly complex. At the risk of simplifying a highly diversified debate it is nevertheless possible to distinguish two general strands. One school of thought sees clearing and settlement primarily as a utility. Strong network externalities in the payment function of securities markets (i.e. a payment system becomes more useful the more clients it has) imply that Europe is best served by a single, user-owned clearing and settlement system serving competing trading venues. Another school places more faith in competition. Natural monopoly and network externalities traditionally associated with utilities are circumvented by advances in information technology that make it possible to link competing clearing and settlement systems, which may or may not be an integral part of a market place. Europe should therefore take steps to reduce barriers to entry and open up the different national markets that would allow a true consolidation and restructuring process where the system(s)/marketplaces best adapted to investors' needs will make the day.

This article will try to disentangle some of the issues raised above and present the various initiatives currently being developed at a European level. The article will begin by presenting the current clearing and settlement models. A second part will take a closer look at the European landscape, dissecting some of the often raised problems of this (lack of) "European model." A final part will present the various solutions being proposed for reducing those problems. The article is based on recent research at CEPS on this subject.¹

Wide agreement on inadequacy of current C&S structures

Inefficiencies cause higher transaction costs

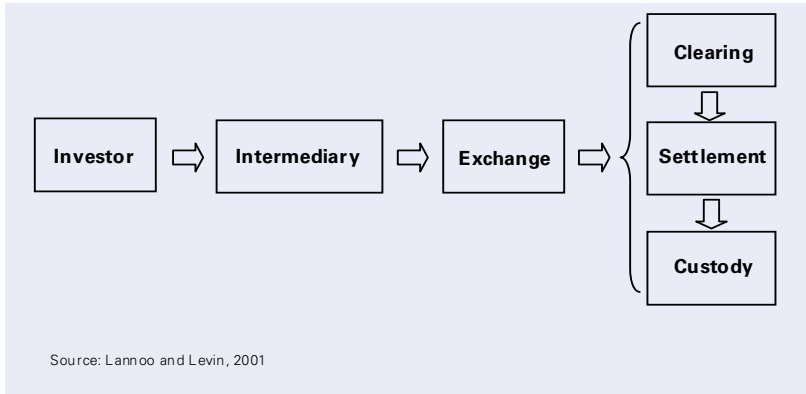
Complex structural issues: C&S as natural monopoly ...

... or as case for strong competition?

¹ Lannoo, K., Levin, M., *The securities settlement industry in the EU - structure, costs and the way forward*, CEPS Research Report, The Centre for European Policy Studies, Brussels, December 2001.

1. The functions of securities settlement

A securities settlement system (SSS) settles the transaction between the buyer and seller of a security. It makes sure that a buyer receives the security and that a seller receives payment. This process can be divided into three core functions: clearing, settlement and custody.



Clearing

Clearing in the securities business is the process that occurs between trading and settlement, involving the balancing of positions between the different parties to establish agreement on what each party is due, prior to the establishment of final positions for settlement. A clearinghouse clears financial market transactions and provides a range of services related to clearing and the management of risk associated with such contracts.

A clearinghouse can act as a central counterparty (CCP) by being a legal counterparty to both sides of a financial market transaction. In that way, the clearinghouse becomes the buyer to every seller, and the seller to every buyer, and replaces the original bilateral contractual obligations. This process is generally known as "novation." CCP netting decreases the final number and the value of transactions that have to be settled and therefore is a powerful tool to reduce settlement costs. For example, the US equity CCP – the National Securities Clearing Corporation (NSCC) – reduced the number of transactions needing to be settled by 97% in 2000.

Settlement

Settlement is the legal transfer of title, normally by exchanging a security against money or assets. Depending on the system, there are several ways of paying. Delivery versus payment (DVP) – the simultaneous exchange of cash and securities – and delivery free of payment (FOP) – delivery of securities without payment of funds – are some of the more common. The typical actor carrying out settlement is a Central Securities Depository (CSD).

In settlement, it is very important to make the asset commitment period as short as possible. Ideally, final settlement should coincide with the payment transfer. In some cases, the settlement system handles the clearing and the securities side of the settlement directly, while the cash side of the settlement is usually effected through the banking/ payment system.

Custody

Custody refers to the safekeeping of assets and the administration of these securities on behalf of intermediaries and investors. While most CSDs offer safekeeping, asset servicing is primarily carried out by

Three-stage process

The securities trade processing chain

Balancing of positions between parties involved

CCPs replace bilateral contractual obligations

Legal transfer of title

Asset commitment period to be minimised

Safekeeping and administration of assets

custodians. These asset services include but are not limited to corporate action, tax services, the exercise of voting rights and advanced income services.

While the services provided by a CSD are sufficient for local investors, foreign investors need more services than a local CSD can offer. This is where the custodians come in. Custodians target investors who invest in several markets and who are unable or unwilling to acquire sufficient expertise on their own to exercise the obligations and rights connected with holding a security in different jurisdictions.

Local custodians, or local agents, offer the expertise, i.e. knowing a particular country's risks, regulations, technology, market culture and contacts with the local CSD. Custodians thus act as the interface between foreign investors and the local CSD. They may be either a large local bank or the branch or subsidiary of a global custodian.

If an investor wants to invest in multiple markets it is more efficient to go to a global custodian than to establish relations with local custodians in each market. The global custodian then acts as the interface in all markets where the investor wants to invest, either by having its own branches in place or by using local custodians. As EU securities markets grow in size and become more integrated, global custodians will come to see the value of establishing themselves in these growing markets instead of buying the services from a local custodian. The local custodians are therefore likely to disappear or be absorbed by their global competitors.

Risks and risk management in securities settlement

As with other operators in financial markets, settlement operators face risks. Apart from pure operational risk (breakdown of settlement systems) there is liquidity risk (risks associated with delays in the settlement pipeline), contagion risk (failure of one transaction may cause failure of other transactions) and legal risk (e.g. legal uncertainty about finality of transaction). Some of these risks are common to all financial market operators, while others are specific to settlement. Risk also depends on the specific activity exercised by the CSD (depository, asset services, etc.). Most of these risks are exacerbated in a cross-border context.

In order to limit the risks inherent in securities settlement, the processing of trades should be automated and rapid, and the legal provisions should be clear and transparent. These conditions are easier to achieve on a national scale. Cross-border trades give rise to more risks. The industry is trying to increase automation and reduce the time it takes to process a transaction, e.g. by providing straight-through processing (STP), i.e. once a transaction has entered one end of the trading chain it goes through the rest of the chain without requiring further interventions.

One way of providing STP is to integrate trading, clearing and settlement into one single body. These so-called vertical silos make STP easier since a single interface is provided. This was absolute value-added when STP technology was difficult to achieve. Today, however, increasing standardisation and decreasing communication costs mean that STP does not necessarily require a fully integrated system. Moreover, silos may also stifle competition, since the costs of the different elements of the transaction may be less transparent.

Custodians for investors operating in international markets

Interface between foreign investors and local CSD

Global custodians as interface to all markets

Inherent risks call for automation and transparency

Pros and cons of vertical silos

Vertical integration has beneficial effects. It makes it easier for transactions to flow through the trade processing chain, since they remain within a single organisation. Vertical integration increases speed and safety and eases risk management. Furthermore, it fosters legal certainty. But there may be some less attractive side-effects:

- Silos may limit the choice for users. The selection of settlement system is preconditioned by the choice of a trading platform. This discards the possibility of other CSDs competing for the settlement of this order flow.
- Silos can remove price transparency in the transaction chain by enabling trading systems to subsidise operations vertically, i.e. to use the revenues from settlement to decrease the fees of securities trading. The cost of this subsidy is borne by the users of the settlement system. According to some observers, this arrangement constrains competition, but according to others it represents a normal commercial decision.



2. European clearing and settlement

In much the same way that capital markets in the EU have historically been split along national lines, so have the securities settlement systems. Moreover, there are significant differences in the structures between states, with the result that the generalisations applied are not always as neat in the business organisation on the ground. Confronted with the emergence of an integrated European capital market, the national CSD structure seems outdated and faces profound restructuring. However, differing market structures make it a complex area to integrate. This part will describe the different bodies active in this field in the EU and analyse the problems and costs associated with cross-border transfers.

Clearing and central counterparties (CCPs)

All CSDs have to clear trades in one way or another before settlement. For a variety of reasons, only a few clearinghouses have traditionally acted as CCPs for the securities markets in the EU. One important explanation is that the value of the netting service that a CCP provides increases with the size of the market and the EU's relatively small markets have so far not found it beneficial to invest in CCPs. As the EU's securities markets are integrating and expanding in size and volume, the use of CCPs is about to increase.

There are currently three major clearing houses in Europe: the London Clearing House (LCH), Clearnet, and Eurex Clearing. The London Clearing House was established in 1888, with the aim of clearing commodity contracts traded in London. It is owned by its members and London's derivative exchanges, and operates as a private not-for-profit company. Clearnet has its origins in the Banque Centrale de Compensation, which in 1990 became a subsidiary of the French futures exchange Matif, which was subsequently taken over by the Société des Bourses Françaises (SBF, later Euronext) in 1998. Following the Euronext merger in 2000, Clearnet merged with the clearinghouses (acting as CCPs) of the Brussels and Amsterdam exchanges. As a result, it became the sole clearinghouse and CCP of Euronext. Eurex Clearing is owned by Eurex Frankfurt AG, was set up in 1998 and is controlled by Deutsche Börse and the Swiss Stock Exchange. It is the clearinghouse and CCP of Eurex Exchanges, which trades in derivatives. It expanded into German government bonds in 2000.

In addition to these larger CCPs, there are a number of smaller ones, such as MEFF in Spain (derivatives) and the CC&G in Italy (derivatives), and new participants are joining. The Swiss Financial Services Group (FSG), of which the Swiss CSD SIS is a member, set up x-clear in 2002. It, together with LCH, will from March 2003 act as the clearinghouse and domestic CCP of virt-x. The DTCC has also set up a UK-regulated clearinghouse, the EuroCCP, to support the cross-border European Nasdaq market.

There have been considerable market demands for a merger of the European CCPs in order to create a pan-European CCP. Thanks to strong network externalities, such a centralised CCP would maximise the benefits of netting and provide significant cost savings. The case has been argued most forcefully, but to date unsuccessfully, by the European Securities Forum (ESF), an association of global and European investment banks. Triggered by Euronext's acquisition of LIFFE, merger discussions are currently underway between LCH and Clearnet. If realised, it would be a further step towards a European-wide CCP.

Structural differences of national systems

National CSD structures outdated

Use of CCPs in the EU set to increase

Three major clearing houses

- LCH

- Clearnet

- Eurex Clearing

Smaller providers

Network externalities favour centralised CCP

Central securities depositories (CSDs)

Central securities depositories (CSDs) have, until recently, functioned as public utilities and quasi-monopolies. Their centralisation at national level has in recent years become more pronounced as a result of consolidation and technological developments.

Thanks to resulting economies of scale, the transaction costs of securities handled within the systems have been squeezed. One of the implications of this process is that the dominant position of the CSDs has become more evident at local level. In the case of CSDs this could take several forms, e.g. price overcharging of service. In many cases, however this has been dealt with either by price regulation or user ownership. In the former case, the law regulates the price; in the latter, the users of the CSD are the same as those making the decisions on prices.

Centralisation as a result of consolidation and technological development

Transactions costs squeezed thanks to economies of scale

Clearing and settlement actors in Europe

Country/ ICSD	Trading	Clearing	Settlement
BE	Euronext Brussels	Clearnet	Euroclear Belgium
DK	Copenhagen Stock Exchange	VP, FUTOP (but no CCP)	VP, FUTOP
DE	8 stock exchanges	Clearstream Banking Frankfurt (no CCP), Eurex Clearing	Clearstream Banking Frankfurt
HE	HELEX Exchanges S.A., HDAT	No CCP for securities, ADECH is CCP for derivatives	BOGS, CSD SA
ES	4 stock exchanges, CADE, MEFF	No CCP for securities, MEFF acts as CCP for derivatives	SCLV, SCLV AIAF, CADE
FR	Euronext Paris	Clearnet	Euroclear France
IE	Irish Stock Exchange		CREST (Euroclear UK)
IT	Borsa Italiana S.p.A.	LDT, CCG (but no CCP)	Monte Titoli
LU	Luxembourg Stock Exchange	Clearstream Banking Luxembourg (but no CCP)	Clearstream Banking Luxembourg
NL	Euronext Amsterdam	Clearnet	Necigef (Euroclear)
AT	Vienna Stock Exchange, NEWEX	OeKB, OtöB, Clearstream Banking Frankfurt (but no CCP)	OeKB, Clearstream Banking Frankfurt
PT	BVL, MTS Portugal	Interbolsa	Interbolsa, SITEME
FI	HEX	APK (but no CCP)	APK, HEX
SE	OM Stockholm Exchange	OM (but no CCP)	VPC
UK	9 regulated markets	LCH (CCP), OM, TradeGo	CREST (Euroclear UK)
Clearstream International		Clears and settles securities transactions in 33 markets through a network of links.	
Euroclear Bank		Clears and settles securities transactions in 33 markets through a network of links.	

Source: Giovannini Report, 2001

Cross-border trades are more difficult to clear and settle in this predominantly national structure. A cross-border trade is a securities transaction taking place between a buyer and a seller of different countries and is, as a result, subject to different jurisdictions. The difficulty with a trade does not necessarily reside in the fact that it is being done across the border. A cross-border trade can actually be as easily processed as a domestic trade involving a security bought and sold domestically. The fundamental difference is whether the trade can be processed using the local CSD's links, the infrastructure of international CSDs (ICSDs) or global custodians, or whether the investor will have to turn to local agents.

When discussing the problems of cross-border settlement, reference is often made to the fact that a trade has to be processed outside the normal settlement system. This requires the use of intermediaries and the creation of back-office infrastructure, which increases the cost of a transaction. This problem is triggered by the requirements of several exchanges or national legislation to settle on the local CSD. Therefore, it is a problem that is more pronounced for equity trading.

ECSDA, the European association of CSDs, has addressed this problem by proposing the creation of links between the national systems. Under the "relayed link" model, one CSD could be connected to another CSD, using its link with a third intermediary CSD, thereby avoiding a situation where every CSD has to be connected with every other CSD. To that end, CSDs had to agree on standards for cross-border settlement against payment of securities transactions (see ECSDA, 2000).

In addition, there are other difficulties that add to the cost of clearing and settling cross-border trades that are not related to settlement, but with other national idiosyncrasies. In many cases, laws strengthen market segmentation, e.g. laws requiring that shares be held in a specified CSD. Moreover, because company law remains highly divergent across the EU, it is difficult for a host CSD to exercise corporate actions.

International central securities depositories (ICSDs)

The two ICSDs currently existing in the EU, Euroclear and Clearstream, emerged in response to the needs of the eurobond market in the 1960s, but have since striven to capture the settlement market of internationally traded securities. Both entities have set up links (direct and indirect) with the SSS in many different markets in order to be able to settle securities on a cross-border basis.

Euroclear was set up in 1968 by a group of banks and securities houses under the patronage of Morgan Guaranty. In 2000, the link with Morgan was cut back and Euroclear Bank was established as a limited company under Belgian law. The transformation of Euroclear coincided with its ambition to become the pan-European settlement platform. Euroclear has since taken over the British, French, Belgian and Dutch CSDs as well as the Irish bond settlement system. Clearstream was formed in 2000 as a result of the merger between Cedel (Centrale de Livraison de Valeurs Mobilières) and Deutsche Börse Clearing.

Custodians

As mentioned above, local custodians are under intense pressure as ICSDs and global custodians find it increasingly beneficial to establish a local presence. This is reflected in the declining number of local custodians.

Cross-border trade more difficult to settle

Transaction costs depend on choice of service provider

Use of intermediaries increases costs

Linking of national systems

Further obstacles due to differences in national capital market and company law

ICSDs in response to needs of eurobond market

Decline in the number of local custodians

	2000	Change 1998-2000 (%)
DE	4	-20
FR	6	-25
IT	5	-29
UK	8	-33
EU*	49	-26
US	11	-15
CH	6	0

* Excluding GR, IE, LU, PT for which data are missing.

Sources: *Global Custodian Magazine* in "Global Custody", Financial Times Survey, 6 July 2001 and 14 July 2000.

The market for *global custody* is highly concentrated. This is largely due to the large start-up and development costs as well as significant economies of scale. The global market is dominated by the Bank of New York, State Street and JP Morgan Chase, each of which has more than USD 6,000 billion in assets under custody and which together make up over 40% of the global market. In Europe, however, there is less concentration. The big three face competition from other US banks (e.g. Citibank) and from European banks such as BNP Paribas and HSBC that want to tap the global custody market as well.

Relationship between CSDs, ICSDs and custodians

There are therefore several actors with different, if somewhat overlapping, roles eager to attend to the needs of the international investor.

The chart on the right illustrates the different channels that cross-border settlement can take. An international investor can use either the local CSD, an ICSD, a global custodian or a local agent when settling across the border. The global custodians and the ICSDs may in their turn be using local agents as well.

Accordingly, ICSDs and global custodians compete (although ICSDs acquire business from global custodians who may choose to settle bonds in the ICSDs). There are also important differences between ICSDs and global custodians. ICSDs target wholesale financial clients, whereas global custodians concentrate more on institutional investors and providers of private banking services. Moreover, while ICSDs provide the same service to every client, global custodians customise their services according to individual client needs.

The relationship between ICSDs and local custodians is somewhat more competitive. Although the business models are different (ICSDs service several markets, local custodians master one market), there is a growing convergence and thus competition for the same services as ICSDs increasingly enter the local market.

Following this venture of ICSDs into local CSDs, custodians are finding it more difficult to compete. According to some, the integration of utility CSDs into Euroclear’s commercial bank framework offers unfair advantages to the ICSDs. As a result, some custodians are calling for a clear regulatory separation of the commercial vs. utility functions in settlement. It remains to be seen though exactly where the line between utility vs. commercial functions is to be drawn.

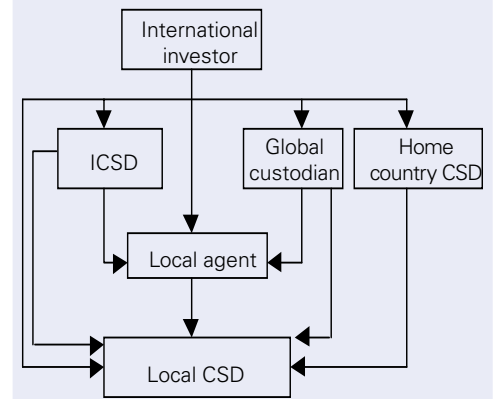
High costs of cross-border securities settlement in the EU

What emerges from the above is securities settlement systems shaped along national lines, where cross-border securities settlement involves many actors competing for the same customers. It is often claimed that this complex infrastructure increases the cost to users of securities settlement services at European level, a claim which will be further assessed below.

Cost elements in securities settlement

Market participants face many types of costs in the settlement of a securities transaction. The most direct costs associated with the operation of a settlement system are the fees charged to users. However, users also face more indirect costs, e.g. back office costs, interface costs, banking and other financial costs and, most importantly, the cost of using intermediaries. As explained above, investors are usually not able to use their domestic settlement system abroad.

Participants in cross-border securities settlement



Source: Giovannini report, 2001

Differences between ICSDs and global custodians

Competitive relationship between ICSDs and local custodians

Increasing competition for local custodians

Complex infrastructure increases costs to users

Fees: direct costs to users

Instead, they have to settle with foreign CSDs, which is most easily done by using intermediaries such as ICSDs, global custodians or local custodians. This is nevertheless costly.

The problems of measuring fees

The best way to measure costs would be to measure settlement fees. As illustrated by the table below, there is no general settlement transaction with a general fee. On the contrary, the fee structure is highly complex, depending upon a variety of factors, e.g. whether the transaction is internal or external (inside or outside a settlement system), the size of the external market, the kind of security, volume and method of payment. As a consequence, it is difficult to acquire an overall view of the fees settlement systems charge their clients.

Costly settlement with foreign CSDs and ICSDs

Complex fee structure

Settlement fees in selected markets – Clearstream

(EUR, 2000)

	Internal				External			
	International securities		Domestic securities		International securities		Domestic securities	
	Equity	Bonds	Equity	Bonds	Equity	Bonds	Equity	Bonds
Clearstream LU	2.00	1.35	2.00	1.35				
Euroclear Bank					2.71	1.35	2.71	1.35
CH					32.47	32.47	27.60- 48.70	21.65- 27.06
DE			2.16	2.16	32.47	32.47	21.65	21.65
FR					32.47	32.47	13.53- 27.06	13.53- 27.06
UK					32.47	32.47	10.82	10.82
US					32.47	32.47	5.41	10.82

Source: Lannoo & Levin, 2001

The fees charged by Clearstream – which are largely similar in structure and level to the fees charged by Euroclear and are used here only as an example – are divided into three groupings: inside the system or outside (internal vs. external), international instruments or domestic instruments, and finally equities or bonds. The figures in these tables show the difficulty of drawing a simple sketch of the fee landscape. It is hard to arrive at a typical internal fee and plot that against an equally typical external fee. Nevertheless, the data confirm the widely held belief that external (outside established system) transactions are more expensive than internal (inside established system) settlements. Put simply, as cross-border transactions are most often external they are more expensive than a traditional domestic transaction, which is most often internal. As soon as a CSD/ICSD has a link with a market, it enables customers to settle their transactions between them within the books of the CSD/ICSD. Moreover, scale and efficiency of a particular market drive down the cost. Therefore, the highest fees seem confined to remote markets where little trading occurs and few links are established.

External transactions more expensive than internal settlement

Comparing operating costs

An alternative way of assessing the costs of securities settlement is by looking at operational cost. Such figures are publicly available (e.g. annual reports) but are not necessarily comparable.² Subject to this caveat, the table below provides a comparison of converged operating costs of most EU securities settlement systems.³ It compares the EU systems with one that is more centralised, using the US securities settlement system as a proxy.

Operational costs not necessarily comparable

Operating income differentials

(EUR, 2000)

	Organisation	Operating income	Pre-netting		Post-netting	
			Number of transactions	OPINC/ transactions	Number of transactions	OPINC/ transactions
ICSD	Euroclear Bank	360,590,000	11,000,000	32.78	11,000,000	32.78
ICSD	Clearstream LU	401,175,000	12,000,000	33.43	12,000,000	33.43
DK	VP	27,122,013	6,800,000	3.99	6,800,000	3.99
DE	Clearstream FFM	268,746,000	125,000,000	2.15	125,000,000	2.15
ES	SCLV	45,758,000	11,000,000	4.16	11,000,000	4.16
GR	CSD	47,805,161	21,973,933	2.18	21,973,933	2.18
FR	Euroclear France	144,968,647	135,000,000	2.00	41,000,000	6.60
	Clearnet France	125,448,000				
IT	Monte Titoli (LdT)	22,175,332	126,395,972	0.18	8,783,635	2.52
PT	Interbolsa	14,205,395	8,654,761	1.64	8,654,761	1.64
SE	VPC	43,125,089	14,633,242	2.95	14,633,242	2.95
UK	CREST	143,446,634	58,816,750	2.44	58,816,750	2.44
EU	EU total	1,644,565,272	531,274,658	3.10	319,662,321	5.14
CH	SIS	103,231,065	17,745,900	5.82	17,745,900	5.82
US	DTCC	638,261,727	1,585,900,000	0.40	230,271,931	2.77

Note: Data adjusted for interest income, depreciation and amortisation and exceptional costs, which have been removed.

Source: Lanno & Levin, 2001.

² First, not all participants perform similar services: even though all CSDs perform certain core functions (settlement, safekeeping), some do more, while others do less. This affects their financial revenues and thus makes comparisons difficult. Second, comparisons are complicated in some cases by the fact that some securities settlement companies are part of a stock exchange (e.g. APK of Helsinki Exchanges and Interbolsa of the Lisbon and Oporto exchanges) or part of a larger bank (Austria's OeKB). If the CSD's accounts are not published separately but are included in those of the parent company, the financial statements therefore would include revenues and expenditure that are related not only to the securities settlement function but also to trading or banking. Third, the financial statements are not prepared in the same way and according to the same rules. As a result, operating income and expenditure may not mean the same thing from one country to another.

³ Data has been made more comparable by excluding those CSDs that are an integral part of an exchange or a bank where reliable data are not available, by excluding certain income (interest income, items of depreciation and amortisation and exceptional costs).

The differences may be summarised as follows:

- *Operating income:* The operating income of these European CSDs amounts to EUR 1,644 million. This is 2.6 times as high as the income of the DTCC (EUR 638 million).
- *Transactions:* After netting, the EU settled 319 million securities transactions in 2000. This is more than the US, where 230 million transactions were settled. However, the US benefited from a very high level of netting by the NSCC. Therefore, the pre-netting figures look quite different. Before netting, the US received 1,586 billion settlement instructions. The corresponding figure for the EU was 514 million.
- *Income per transaction:* Post-netting figures show that the EU average operating income per transaction is higher than the US (EUR 5.14 as compared to EUR 2.77). This is 86% higher than the DTCC. Pre-netting figures yield a different result: the EU's average operating income per transaction amounted to EUR 3.10. The DTCC's income per transaction is EUR 0.40.
- *Operating margin:* if one adds operating expenditure (see Lannoo & Levin 2001 for full tables) one sees that European CSDs have considerable margins between their income and expenditure. The EU average is 33% (both pre- and post-netting). This contrasts with the US where the DTCC just covers its expenses (1% margin, both pre- and post-netting).

In sum, the operating costs of the EU's securities settlement systems are higher than those of the DTCC. Nevertheless, the difference is not as dramatic as often stated. In addition, the EU average is blurred by the existence of two outliers – the ICSDs. If these two are excluded, the EU's operating costs are only marginally higher than in the US.

There are a number of lacunae in the figures presented above, however. Although the major securities settlement participants are included, three member states (Belgium, Finland and the Netherlands) are not accounted for, nor are the operating costs of parallel securities settlement systems (e.g. CADE in Spain). Moreover, despite attempts to standardise the kinds of revenue included in operating income, the variable continues to reflect the differences in the underlying scope of services that each participant provides. This is particularly the case for the ICSDs. They are different and their operating results are gross outliers. We elaborate on these comments below.

Does it make sense to compare with the US?

The rationale for comparing the EU with the United States is that a centralised securities settlement infrastructure is one obvious model towards which the EU could strive. Moreover, the US example illustrates what concerted policy action can achieve. US centralisation did not happen by itself, however. On the contrary, the US Securities and Exchange Commission (SEC) and the US Congress forced it through the legislative process in 1976, in spite of strong opposition from market participants.⁴ The US model of centralisation is also interesting as it was created in an environment of rapidly integrating and evolving markets, which characterises the current situation of the EU today.

⁴ ESF (2000).

EU-CSD's income 2.6 times that of DTCC

US benefits from high level of netting

Income per transaction in the EU greatly exceeds US levels

Operating margin: EU 33%, US 1%

Operating costs in the EU only marginally higher than in the US

Incomplete empirical evidence

US centralisation as model for EU industry?

It is true that the US realised significant cost savings when the DTC and the NSCC were set up in the 1970s. A study commissioned at the time by the SEC⁵ on the effects of moving from seven CCPs to one CCP estimated a cost saving of 63.5%, with the cost per transaction estimated at somewhere between USD 0.50 and USD 0.20. Moreover, the cost to users would decrease as well. Some 63 firms that were deemed to represent a cross-section of securities settlement users were estimated to save USD 150 million a year (USD 475 million in current prices) by moving to a centralised system. These cost savings have been realised by the DTCC.

Nevertheless, running the DTCC comes at a certain cost, as evidenced by the fairly high operating costs presented above. In addition, there are a number of factors that make a centralised solution in Europe more difficult than in the US. Because the EU is not a single jurisdiction, like the US, centralisation would require legal harmonisation. The complex EU environment – including different securities company laws, tax rules, cultures, etc. – may well pose an insurmountable obstacle to full centralisation, at least in the short to medium run. Moreover, the EU is unlikely to muster sufficient political will or strength to be able to impose a solution on the market. All of this calls into question the feasibility of US-style centralisation in the EU.

Moreover, is the US model advisable in an EU context? In many ways the DTCC actually operates in a less demanding environment. For example, the huge bulk of DTCC transactions are domestic. While its domestic prices are very low, it appears to be less effective in dealing with cross-border transactions. It cannot yet handle settlement in different currencies, although such an initiative is now underway. To a large extent, these differences are a natural reflection of the different contexts in which EU and US securities settlement systems have developed. The NSCC, for example, was developed to solve the operational risk of large volumes rather than focus on counterparty risks. Volumes are much lower in Europe and therefore the focus in the EU is more on counterparty risk. Most users (and owners) of DTCC predominantly trade in the US. Therefore, multiple-currency settlement has been less in demand compared to Europe where cross-border trading is more common.

To conclude, while the US model illustrates that regulation and user governance can mitigate the traditional problems of a monopoly (price and services), it remains an open question whether it will over time manage to overcome another problem associated with monopolies: the difficulty of creating benign conditions for innovation in the absence of competition.

Sensitive assumptions

Another inherent problem in cost calculations is the sensitivity of a result to earlier judgements made on underlying assumptions. As is clear from the table above, the operating income results are very sensitive to changes in these assumptions. Two issues in particular affect the result: the choice of transaction variable and whether or not ICSDs are included in the EU average. The table to the right presents the outcome if those assumptions are changed.

Enormous cost savings as a result of centralisation ...

... but DTCC still runs high operating costs

EU environment more demanding

Four options for calculating operating income per transaction

EUR				
	<u>Pre-netting</u>	<u>Post-netting</u>		
With ICSDs	EU:	3.10	EU:	5.14
	DTCC:	0.40	DTCC:	2.77
	Ratio:	7.75 : 1	Ratio:	1.86 : 1
Without ICSDs	EU:	1.74	EU:	2.98
	DTCC:	0.40	DTCC:	2.77
	Ratio:	4.35 : 1	Ratio:	1.08 : 1

Source: Lannoo and Levin, 2001

⁵ Shriver Associates (1976) in ESF (2000).

The assumptions of square 1 (pre-netting, ICSDs included) yield a result that is closest to the common assumptions that EU securities settlement is ten times more expensive than in the US (in this paper 7.75:1). If the ICSDs are excluded from this calculation, the EU average operating income would still be higher than the US, but less so (4.35:1, square 3). If one uses post-netted figures and includes the ICSDs, then the difference is 1.86:1 in favour of DTCC. Finally, if using figures after netting and excluding the ICSDs, the difference becomes marginal (EU +8%). Which of these parameters is best is open for discussion. Including ICSDs in the ratio distorts the picture, since it adds complex international transactions on the EU side compared with all the transactions in a homogeneous US market on the other. Looking at pre-netting alone does not bring the efficiency improvements of netting into the picture and therefore yields a perverse result.

Furthermore, comparability of these statistics is limited by the fact that different settlement systems do not provide the same services. The type of services provided and pricing policy of the settlement system affect its operating income, and thus indirectly the results presented above. The kind of service provided and the pricing policy have an impact on the operating income results presented above. A settlement system that is a pure settlement provider will receive low income per transaction. A settlement system that provides more services will receive higher operating income per transaction. For example, the high operating income per transaction for the ICSDs above is largely explained by their corporate action revenues.

Wider costs

Overall, the figures above show that domestic settlement in the EU is more expensive than domestic settlement in the US, but not as much as often thought. The figures do not say much about the costs of cross-border securities settlement, however.

A presentation exclusively of operating costs provides an incomplete picture of the total costs sustained in securities settlement. The main costs fall on users when trying to settle across borders. Users have various channels at their disposal for this purpose. Sometimes they can use the links of their own CSDs. Most often, however, they have to use other intermediaries (e.g. a foreign CSD, local custodian, global custodians or ICSDs). In addition to this intermediary cost, users have to reinforce their own back-office and technological systems so that they can cope with dealing with several CSDs and other participants with varying technical and legal requirements.

No firm data of these costs exist, but assessments have been made. According to Euroclear's estimates, the cost of using a CSD or an ICSD represents only 4% of the total cross-border settlement cost. The largest cross-border cost for the end-user is the maintenance of back offices, i.e. staff and systems. The back-office costs represents 60% of total cross-border settlement costs. The use of local agents accounts for the remaining 35%.⁶ Euroclear draws these figures from its own cost curve. Clearstream has also presented a rough assessment of some of the wider costs of securities settlement. According to Clearstream, 30% of the total settlement costs is linked to CSDs or ICSDs (transaction and custody fees, foregone interest income). The remaining 70% is explained by the cost of intermediaries (14%) and the cost of maintaining multiple accesses (21%), just to mention two.

Ambiguous comparative results

Differences in service levels blur the picture

Overall, EU more expensive than the US ...

... but differences in costs not as dramatical as expected

Use of CSD/ICSD only 4% of total cross-border settlement costs

⁶ See e.g. Francotte (2001).

Although both assessments reach the same conclusion that the CSDs and ICSDs are not the main costs, there are wide differences. Clearstream's figure for intermediary costs is, for example, much lower than Euroclear's. Part of these differences may be explained by the fact that it is grouping the costs differently or measuring different things. The wide difference also implies, however, that there is considerable uncertainty about the extent of particular costs. The numbers should therefore be treated with caution and further research in this area is needed.

3. What European policy for clearing and settlement organisations?

If the consolidation process should be largely market-driven, this does not mean that no regulation is needed. And this is where the difficulties start. The objective should be to open up national markets for competition, and hence to stimulate European-wide consolidation with a minimum of new regulation. However, such a process can rapidly spiral out of control as a result of the different wishes of the various interested parties, and the need to find a common ground. Moreover, the need for a level playing field can be a catch-all to harmonise everything.

Some regulation affecting cross-border access for clearing and settlement systems has been in place, but it seems not to have been enough. Article 15.1 of the EU's 1992 Investment Services Directive (ISD) stipulates that authorised firms can have remote access to clearing and settlement systems. However, this article has not been consistently applied to CSDs in the EU. In some member states, access was only provided to locally licensed firms, even if this was contrary to the provisions of the ISD. Moreover, under the ECB rules, banks were obliged to use local CSDs to mobilise collateral in liquidity-providing operations of the central bank.

The restructuring of Europe's exchanges and the advent of EMU brought renewed attention to the role of clearing and settlement systems. The attention at EU level came from three sides: 1) the Giovannini group, an interdisciplinary group run by the European Commission's directorate on Economic and Financial Affairs, which looks at the integration of bond markets; 2) the Financial Services Action Plan, drafted by the European Commission's internal market directorate to achieve a deeper integration of Europe's capital markets; 3) the European Central Bank's scrutiny of CSDs' compliance with its settlement procedures standards. In the meantime, also the European Commission's competition policy directorate has become involved in the debate.

1. The Giovannini report provided a compilation of the barriers to efficient clearing and settlement services. These barriers can be subdivided in national differences in technical requirements and market practice, national differences in tax procedures, and issues relating to legal certainty. While the former of these can be solved by the market, the latter raise public policy issues. The Giovannini Committee is expected to issue a second report dealing with the approach to be followed to dismantle these barriers, although no clear date has been announced for this so far.
2. The European Commission's policy objectives are the removal of barriers to an efficient European market for clearing and settlement, and the opening-up of access to host country systems. Initially, the intention was to enforce and probably strengthen the existing provision of the ISD of free access to clearing and settlement

Considerable uncertainty about extent of costs

Objectives:

- Opening up of national markets for competition
- Minimum of regulation

ISD's remote-access-clause not consistently applied

EMU has given new impulse

Giovannini report identifies barriers to efficient C&S

Commission objectives: removal of barriers, free access across systems ...

systems. In the first consultative paper on the ISD, the Commission proposes to strengthen article 15.1 by allowing market participants to designate the locus of settlement, and allowing regulated markets to use CCP services in other member states.⁷ In a communication on clearing and settlement, the Commission proposes to go further, and to set minimum criteria *by law* for clearing and settlement organisations, the permissible activities and the supervisory arrangements. Free competition between these organisations requires a level playing field, which does not exist at this stage, the Commission argues.

3. The Commission's work contrasts somewhat with that of the ECB, which has joined forces with the Committee of European Securities Regulators (CESR, formerly FESCO). The aim of the latter is the establishment of *common standards* for securities settlement systems and for central counterparties at the European level, to create a level playing field. Issues raised for consideration concern the possible adaptation of the CPSS/IOSCO "Recommendations for Securities Settlement Systems" to European environment, an analysis of central counterparties (CCPs) clearing activities in Europe with a view to identifying a suitable regulatory approach, and a review of the barriers identified in the Giovannini report. A summary of the responses was published at the end of August 2002.

So, while the objectives of both organisations, the Commission and the ECB, are the same – a level playing field – the means are different. The Commission calls for further harmonisation, whereas the ECB believes that minimum standards can be sufficient. To assess what policy is required, a brief comparison with the policy adopted in the liberalisation of other network industries can be revealing.

Like communications networks, securities settlement systems can be considered as network industries. Network sectors depend on the control of a given infrastructure that represents a natural or de facto monopoly within a given market, since the benefit of using a certain system increases with the number of users (the network externalities). Many states therefore established special regulatory regimes for network industries such as telecommunications, energy or public transport.

In an EU context, these differences of national regimes raise the question of their compatibility with EU competition policy and the single market.⁸ National regimes to deal with the special rights of networks may de facto contradict EU rules. In general, however, sector-specific regulation was seen to be required before EU competition policy could be applied. Overall, the process of liberalisation is complex, even more if it needs to be translated into national law. The need for a level playing field can lead to very detailed rules or a tendency to harmonise everything. The harmonisation at EU level thus needs to be balanced with the benefits to be achieved from this process. Clearly, in the telecommunications area, much broader interests are at stake, requiring more and detailed regulation, than in the area of securities settlement systems.

... plus minimum standards for C&S providers, permissible activities and supervisory arrangements

ECB and CESR prioritise establishment of level playing field by issuing common standards

Harmonisation vs. minimum standards

Lessons from other industries

Danger of over-regulation

⁷ European Commission (2001), *Overview of the Proposed Adjustments to the Investment Services Directive*, Working Document, July

⁸ See Lannoo and Levin (2001) for a more detailed overview of the liberalisation of network industries in the EU.

The approach taken by the European Commission internal market directorate in its communication on clearing and settlement in the EU may rapidly result in a regulatory build-up. The communication says that progress in the direction of interoperability of systems has been limited, which requires the intervention of public authorities. Interoperability involves establishing definitions of the various functions, common processes and methods for each of the stages of the transaction, and adopting harmonised communication links. Furthermore, a level playing field would involve having a separate licence for clearing and settlement systems, which will require clear definitions of minimum capital, the permissible activities, etc.

Since liberalisation as set out in the current ISD has not been consistently enforced across member states, and clarifications could be taken care of in the amendments to the ISD that are currently envisaged, it would be preferable to follow that route for the time being. This could be combined with the action undertaken by the ECB/CESR to set common operational and prudential standards, and a vigilant attitude of the EU's competition policy authorities. The latter are expected to bring out a report on possible anti-competitive practices in the sector.

Competition policy concerns related to clearing and settlement systems are discriminatory pricing, exclusive conditions and cross-subsidisation in vertically integrated exchanges. The latter issue has been repeatedly brought to the foreground by the chairman of the London Stock Exchange, Don Cruickshank, who has called for the creation of a single pan-European system. He argues that it is not possible to introduce effective competition into clearing and settlement systems, since the majority of services offered by clearing and settlement systems are not in effective competition with each other.⁹ We would strongly disagree with the latter (see description of services offered by CSDs above), and argue for the need of real competition in these markets.

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⁹ Don Cruickshank, *Clearing and Settling European Securities: Where competition works (and where it doesn't)*, Conference Speech, London, 21 March 2002. The Lamfalussy report also raised the possibility of a public policy solution "if the private sector was unable to deliver an efficient pan-European clearing and settlement system"; Lamfalussy Report, p. 16.

Interoperability and interlinking: the way forward for the C&S industry

The landscape of Europe's securities industry is characterised by fragmentation. There is a multitude of national exchanges along with several proprietary trading systems and newly formed platforms, the latter's emergence having been driven by the huge stock market growth in the late 1990s. In addition, each country has developed its own national clearing and settlement system or central securities depository (CSD). Every bank needs an account with every system or has to use intermediaries' services if it wants access to foreign markets. A few years ago priority effort was devoted to rationalising trading space. Now, the process of clearing and settlement is considered to be of strategic importance to create an integrated European capital market. It became clear early on that the European capital market may face a competitive disadvantage as the service level to handle cross-border trades in Europe is far from satisfying. A comparison with the US intensified the call to consolidate and finally integrate the European securities industry. Although bilateral links have been established between CSDs in Europe in response to the introduction of the euro in order to facilitate cross-border transfers of securities and to use them for the transfer of collateral for the Eurosystem's credit operations, the use of these links remains modest because of unattractive costs and the high concentration of securities turnover in a few marketplaces.

The current setting

Rationalisation of clearing and settlement is considered to be a major force to increase Europe's competitiveness in terms of cost, efficiency and reliability to the benefit of investors in the form of lower transaction costs and to the benefit of issuers in the form of lower capital-raising costs. Assumptions on the degree of the potential cost savings differ widely. While, for example, the London Stock Exchange believes that end-users pay EUR 1.6 billion in excessive costs annually, Deutsche Börse calculates that number to be EUR 3.2 billion. What is agreed on is that indirect costs of clearing and settlement far exceed those of the directly paid fees. A cross-border trade implies the reconciliation of systems of more than one CSD. This increases the necessity for manual data processing. Other factors also come into play. Taxation requirements have to be obeyed; national conventions for the settlement process are not harmonised yet; and laws to complete the irrevocable transfer of ownership differ across the EU. This would give the domestic service provider an advantage on its home turf over (foreign) competitors, even if laws of compulsory usage of a certain CSD were abandoned.

Cross-border trades produce direct (transaction) costs in the form of fees charged by clearing and settlement providers as well as (higher) collateral or liquidity costs and costs for the maintenance of multiple access points for different systems. Compared to domestic trades, cross-border trades, on average, have a high failure rate associated with opportunity costs and additional handling costs. A study presented by Fulcrum Research reports costs for a single failed cross-border trade to be EUR 388. Normally, foreign investors do not directly access a CSD but shop for intermediaries which offer indirect access, e.g. custodians (custodian banks) which have opened accounts with a

Consolidation of C&S landscape seen as strategically important

Indirect costs: main drivers for high cost structure

Complex structures lead to high costs and lack of competition

multitude of CSDs. The additional layer(s) of service providers adds to the complexity and costs of cross-border trades. The fact that custodian banks, for example, may face stiff competition from CSDs in future is indeed desirable if all players compete on a level playing field which requires cost transparency and free access and egress.

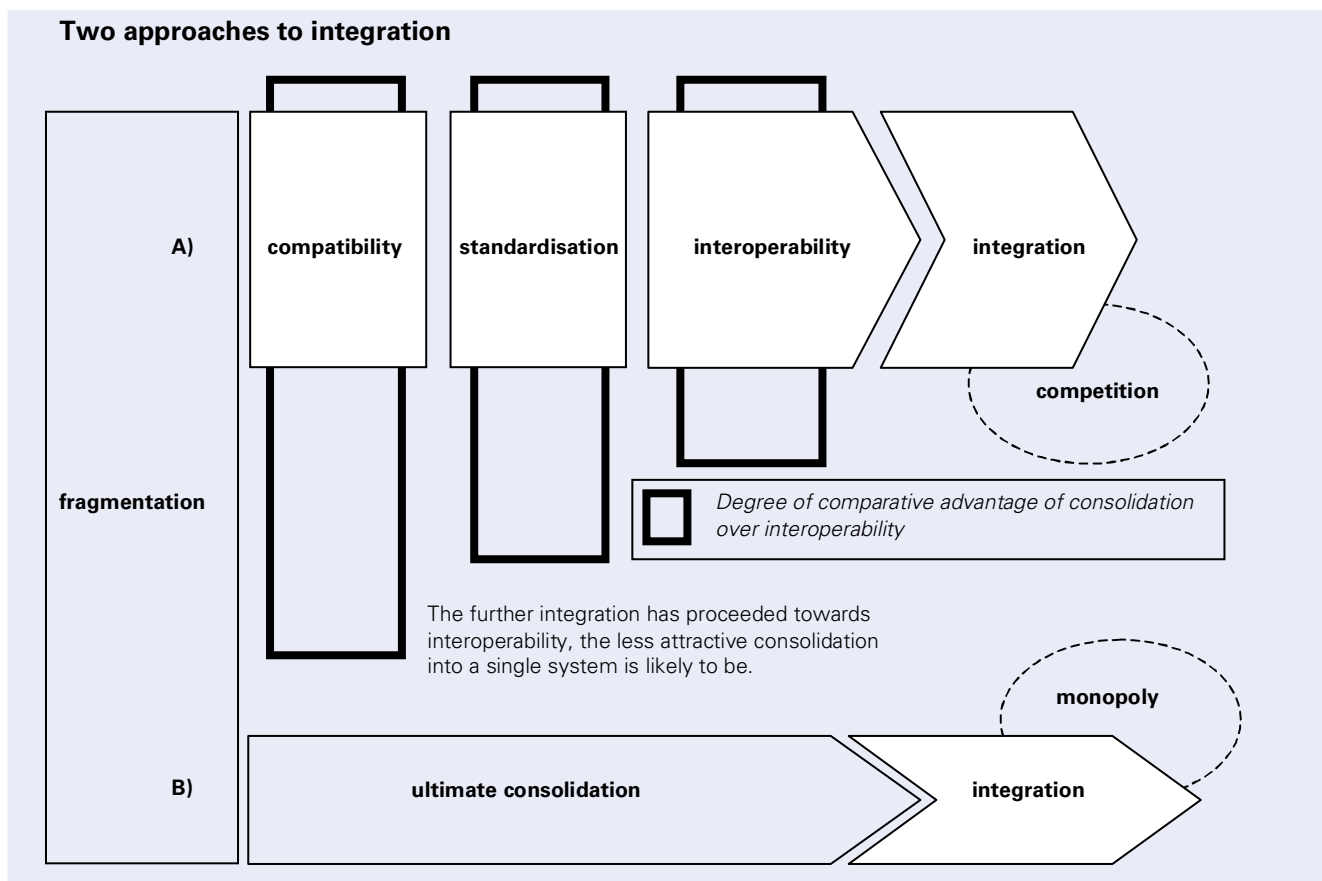
The initiatives of certain exchange operators to introduce foreign stock to trading in a national market on domestic terms are of limited interest to institutional investors as they prefer to execute trades at the securities' largest pool of liquidity to minimise a possible market impact and, besides other factors, to benefit from low spreads. Thus, although the idea to "domesticate" a cross-border trade is appealing, the demand for a rationalisation of cross-border/cross-system trades cannot be met with changes on the trading site.

Multiple listings not a realistic alternative

A model of market-driven integration

Thus, what is needed is **integration** between national systems to eliminate clearing and settlement costs as a determinant of investment decisions. But it is of great importance to distinguish between aims and means:

Interoperability as a means for integration



Consolidation – although frequently cited as if it were a foregone conclusion – is one, but not the only, way to achieve integration. **Interoperability** is another. While the process involved in reaching interoperability leaves freedom for consolidation all the time, the degree of comparative advantages in terms of costs for consolidated systems over integrated systems decreases according to the level of interoperability attained. Market participants have invested heavily in the development and maintenance of national clearing and settlement systems. As such, the players are justifiably reluctant to replace existing

platforms working efficiently for domestic trades in favour of a new consolidated platform which could not substantially improve the domestic arrangements.

Explaining in detail why existing clearing and settlement systems are currently unable to provide cross-border trades as efficiently as domestic trades certainly exceeds the scope of this article. The reader is recommended to refer to the report on "Cross-Border Clearing and Settlement Arrangements in the European Union" presented by the Giovannini Group¹ or the Lamfalussy Group's "Final Report of the Committee of Wise Men on the Regulation of European Securities Markets"². However, the present report will try to spell out major cost-driving factors and propose a possible solution for the future European clearing and settlement landscape. Efficiency gains in the securities service industry should be achieved by means of a market-driven solution barring all but reasonable support from public authorities. Providing clearing and settlement services offers profit opportunities, and the future will tell if this represents a sustainable business or if it will become a utility service as in the USA, for instance. The primary role of public authorities should therefore be to eliminate the legacy constraints that prevent free market competition and to support the emergence of a level playing field.

After the removal of barriers which hinder effective competition (such as different IT standards and communication protocols) and which cannot be justified by risk considerations (e.g. national restrictions discriminating against the use of a certain system or restrictions in the location of systems), customer usage of a system or the lack of it will decide on the optimal clearing and settlement structure. This comes along with the establishment of free access and egress at all parts of the value chain so that CSDs cannot exploit an unfair monopoly.

The existing systems in Europe possess significant importance for the smooth functioning of the financial markets and contribute to the stability of the financial system. It is difficult to assess the reciprocal influence of one system on another especially if systems have to interact during a cross-border trade, and it is equally difficult to assess how failures could spread and lead to systemic risk. So far, no system has suffered a major default. Especially after September 11, 2001 it became obvious how strongly the market depends on the availability of the systems. Further integration to reduce transaction costs may be bought with higher risks or the concentration of risk in a consolidating system. The financial community as well as public authorities are well aware of this fact. Hence, a look into the possible future of the European clearing and settlement landscape should also take into account risks introduced by new arrangements.

Important initiatives

There are two major channels through which the industry tries to approach the issue of cross-border clearing and settlement arrangements. The first realm of initiatives encompasses efforts of private interest groups and joint work between private organisations and public authorities to identify barriers to more efficient cross-border services and is flanked by more or less detailed proposals to solve the problem(s).

Market-driven solutions should govern the consolidation process

Customer usage will decide on the optimal C&S structure

Any structure must take risks to financial-system stability into account

Public and private-sector initiatives on the C&S issue

¹ http://europa.eu.int/comm/economy_finance/publications/giovannini/clearing1101_en.pdf

² http://europa.eu.int/comm/internal_market/en/finances/general/lamfalussyen.pdf

G30 recommendations

The publication of the recommendations of the "Project on Global Clearing and Settlement" by the Group of Thirty (G30)³ which is a private, non-profit, international body composed of senior persons from the private and public sectors and academia is imminent. Although Europe usually takes a narrow view on itself, the European consolidation is only a pre-condition for a global infrastructure. G30⁴ is due to release some twenty recommendations⁵ which have been developed building on a comparison between the 19 CPSS-IOSCO recommendations that define minimum standards for securities settlement systems and the current reality. The G30's recommendations aim to increase efficiency (e.g. best practices to apply communication standards, handling of corporate actions etc.), but also offer practical help to mitigate risks. The latter is of major concern for the industry but also for the authorities supervising the industry.

Initiatives from the EU official sector

At the EU level, the Commission is conducting its investigation of the clearing and settlement inefficiencies. In its recent consultation paper⁶ it announced two main objectives: The first is to remove barriers to the finalisation of individual cross-border transactions in the form of national differences in technical requirements/market practice, tax procedures and laws applying to securities.⁷ The second objective is to remove competitive distortions or unequal treatment of entities performing similar clearing and settlement activities. The European System of Central Banks (ESCB) and the Committee of European Securities Regulators (CESR) formed a joint working group back in 2001 to "lead to the establishment of standards and/or recommendations for securities settlement systems and for central counterparties at the European level [and] to contribute to creating a level playing-field for the providers of securities clearing and settlement services and to overcoming the significant heterogeneity within the legislative frameworks of European countries."⁸

All of these initiatives share the idea to develop detailed recommendations/best practices derived from the vision of an ideal landscape. They rarely settle for a certain architecture or model to provide an integrated European clearing and settlement infrastructure and do not explicitly prefer horizontal over vertical integration or vice versa. In this regard, they differ from the second kind of initiatives, which are mainly driven by profit considerations.

G30 recommendations will build on the CPSS-IOSCO recommendations

Several working groups and consultations at EU level

³ <http://www.group30.org>

⁴ Andrew Large, Deputy Governor of the Bank of England and Chairman of the Steering Committee of G30, gave a first summary of the project's results at the Annual Meeting of the International Monetary Fund (IMF) in Washington D.C. on September 30, 2002.

⁵ Principally, the recommendations shall help to improve and strengthen governance, bolster the resolve and forcefulness of boards in this area, ensure fair access and encourage consistent supervisory oversight.

⁶ Clearing and settlement in the European Union – Main policy issues and future challenges, May 2002.

⁷ The second objective is to remove competitive distortions or unequal treatment of entities performing similar clearing and settlement activities.

⁸ Press Release Joint work between the CESR and the ECB on securities clearing and settlement systems, Paris/Frankfurt am Main, 25 October 2001.



Industry action

This second realm of initiatives concerns mergers and take-overs between providers of clearing and settlement services as well as trading platforms. In spite of this consolidation, the European clearing and settlement industry remains highly fragmented since over-capacity was not significantly reduced. Recent examples such as the acquisition of Clearstream International by Deutsche Börse and the merger agreement between Euroclear and CrestCo prove that, although consolidation takes place, the overall number of systems used in Europe has not decreased yet and consequently the desired cost savings have not been achieved. Consolidation has mainly taken place in terms of ownership structure and not in systems and procedures. For example, Deutsche Börse expects to realise synergies of at least EUR 50 million per year after the Clearstream take-over, and they are not expected to come into play fully before 2004.⁹ Calculated from the combined entity's cost base in 2001, synergies remain well below 5% of total costs. Euroclear/CrestCo announced that "by 2008, when the new model (combined entity) will be fully implemented, it will offer all customers of the new Group a 90% reduction in cross-border tariffs for Group securities."¹⁰ Both examples emphasise the fact that substantial cost savings are unlikely to be achieved within a reasonable time frame with conventional answers.

Why has there been no major progress yet?

Stock exchanges and to some extent also the interconnected clearing and settlement systems touch on feelings of national pride. This phenomenon regularly causes resistance among politicians, supervisory authorities and the public in general if the ownership or governance of a national exchange threatens to, or does, fall into foreign hands since this is perceived as endangering traditional influence and power regimes. Partly reflecting those fears, a hostile take-over of operators of stock exchanges is complicated by strict laws in certain European countries. In Germany, according to the Fourth Financial Market Promotion Act, the supervisory authority has to be informed immediately by anyone who wishes to buy an important stake in the stock exchange's operating company and the authority is entitled to forbid the acquisition of a major stake. Another example is article 26a of the Dutch Act on the Supervision of Securities Trade. According to this it is forbidden to hold or obtain a qualified stake (>10%) in the operator of a securities exchange without having obtained clearance from the Minister of Finance. Even the US does not set an example in this regard. These legal obstacles explain why improving cross-border clearing and settlement arrangements requires a far more flexible approach than, for instance, a simple take-over or merger towards a "European DTCC". As a negative side-effect of a merger between ICSDs and CSDs, the efficiency of domestic clearing and settlement could arguably be diluted with high-priced cross-border business.

Practical experience shows that the creation of a single European organisation which provides clearing and settlement services Europe-wide and across all products is unlikely to be achieved within a reasonable time horizon. Euroclear and Clearstream – the major ICSDs – will not come to an agreement to merge without outside support.

Mergers and take-overs in C&S industry do not cut complexity or costs

Widespread protection of national CSDs hinders consolidation

Plans for creation of a single European organisation premature

⁹ Deutsche Börse AG, Interim Report Quarter 1/2002.

¹⁰ "Delivering a domestic market for Europe", CrestCo and Euroclear, 23 September 2002.

Still, a market-oriented solution focussing on the demands and needs of a competitive European capital market on the one hand and reflecting and accepting existing hurdles especially with regard to political issues and investments on the other might be an appropriate interim step. It is important to note the fact that no single CSD/ICSD will be accepted by the other infrastructure providers to act as the European consolidator.

Euroclear brought up the concept of a so-called hub-and-spokes model a few years ago. It would have created a hub with which every CSD would have established an account. Global institutions would have used that hub as the primary clearing and settlement institution for their operations, and CSDs would automatically be left to handle the remaining gross domestic trades left over. As Euroclear (or the merged entity with Cedel, now Clearstream International) was supposed to act as the hub (top-down approach), questions as to governance and valuation became insurmountable and, hence, the hub and spokes model never made it to reality.

Neither the financial community (via e.g. interest groups such as the European Securities Forum (ESF)¹¹ nor infrastructure providers were able to make any progress in reducing the costs of cross-border equity clearing and settlement. Quite the contrary, the existing vertical silos have gained in strength, especially for nationalistic and political reasons. With the take-over of Monte Titoli S.p.A. by Borsa Italiana the model of vertical integration has found another imitator, even though prevailing opinion among the users is that within the European securities industry a horizontal structure with strict separation of trading from post-trading services is preferable to a vertical silo. This is because vertical silos tend to eliminate free market forces by making it impossible to use and pay for all or only selected services on the basis of transparent and justified fees and tariffs, as the great advantages of this business model result logically from integrated platforms and straight-through processing along the complete value chain.

But no service provider (even vertical silos) can elude the pressure to allow free access and egress and they have to reflect this demand increasingly in the pricing structure. For example, Deutsche Börse announced that with the introduction of the Equity Central Counterparty (ECCP) in the first quarter of 2003 the price structure for the Frankfurt Stock Exchange (FWB) will be realigned. Xetra used to offer an all-in fee. From next year, tariffs will reflect the actual usage of systems and services and, consequently, become in principle a voluntary offering. Hence, usage becomes optional. Euroclear, too, follows this approach and states that it expects (by 2008) the completion of the new platform offering access to all (Euroclear) Group securities through one securities account, with one interface, one payment relationship and with a choice of service levels and tariffs.¹² Transparency is an important requirement of the upcoming clearing and settlement infrastructure.

Designing the future landscape

While discussing any approaches towards a future clearing and settlement landscape, the following criteria besides the cost factor need to be taken into account:

Euroclear's "hub-and-spokes model" not accepted, therefore never implemented

Vertical silos are criticised, in particular, for inhibiting competition

Generally, pricing structures become more transparent

Other factors need to be taken into account besides costs:

¹¹ <http://www.eurosf.com>

¹² CrestCo Euroclear Factsheet

Risk management

Principally, risks exist until the irrevocable transfer of securities and payment has been achieved. Participants have to possess the equivalent amount of cash and securities on the settlement day when their obligation resulting from the trade becomes due. Still, participants depend on incoming transfers of other players to fulfil their obligations. Especially for large trading volumes the netting of cash and securities offers huge cost savings (because participants need not hold the respective balance of cash or securities throughout the day), but implies a high risk if parts of the single net delivery fail. While mechanisms such as collateral provisions exist to cover possible failures, further integration may entail a higher probability that defaults of one system or one participant could spread to others. The debate about cost efficiency therefore always has to be specified with an eye to a weighting between cost savings and risk appetite. Regulation and supervision, minimum capital requirements for members and implementation of risk control management processes play an important part in safeguarding the architecture's proper functioning.

Governance

In the past, users and owners/shareholders of both trading as well as clearing and settlement systems were identical. That has changed, and the future of European clearing and settlement systems has to reflect this. Yet users have to have adequate influence in the governance of the institution providing such services. There is no rational reason to remain a (dominant) shareholder of a profit-oriented company except for investment purposes. Additionally, the clear distinction of the traditional functions provided by clearinghouses, CSDs, ISCDs, custodians and banks is fading. They increasingly compete with each other by broadening their range of services.

The ability and even the desire of shareholders of infrastructure providers to increase the pressure for consolidation is questionable as the shareholders' interest is primarily focused on the financial return. Revenues from offering clearing and settlement services contribute to a large extent to the overall income especially of vertically integrated operators and therefore translate into a higher share valuation especially of exchange-listed institutions. Consequently, the pressure needed to promote further consolidation should come from important market participants, such as the largest users.

Interoperability

Interoperability is the reciprocal, seamless use of information between different systems. All attempts to consolidate the European clearing and settlement landscape have not led to less complexity. One could draw an analogy of the clearing and settlement infrastructure with other services such as in the telecommunication, household electricity or gas sectors because clearing and settlement systems could be regarded as similar to the natural monopoly of telecommunication or electricity networks.¹³ The question is whether there can be effective competition between CSDs as long as the movement of securities from one system to another is more costly than intra-system transfers. Achieving interoperability could be the solution, so that competition between CSDs comes into effect.

Risk to system stability to be weighted against cost efficiency ...

... governance structures to respect interests of users as well as owners ...

... interoperability to serve as means of effective competition ...

¹³ Cf. Alistair Milne's remarks on this issue in his study "Competition and the rationalisation of European Securities Clearing and Settlement", <http://www.staff.city.ac.uk/a.k.l.milne/draft2.pdf>.

Based on these three criteria, an efficient structure should also satisfy the following conditions:

1. Investment in the development and maintenance of systems by only a few CSDs is more desirable than placing this burden on all (several hundred) market participants.
2. The process of consolidation should not be achieved in a big bang solution but ought to be a compromise from the outset.
3. Any envisaged structure has to take into account the different needs and complexity of handling bonds on the one hand and equities on the other.
4. The new structure must provide open access and egress.
5. Unreasonable investments in new systems by market participants have to be avoided.

... and a number of additional criteria

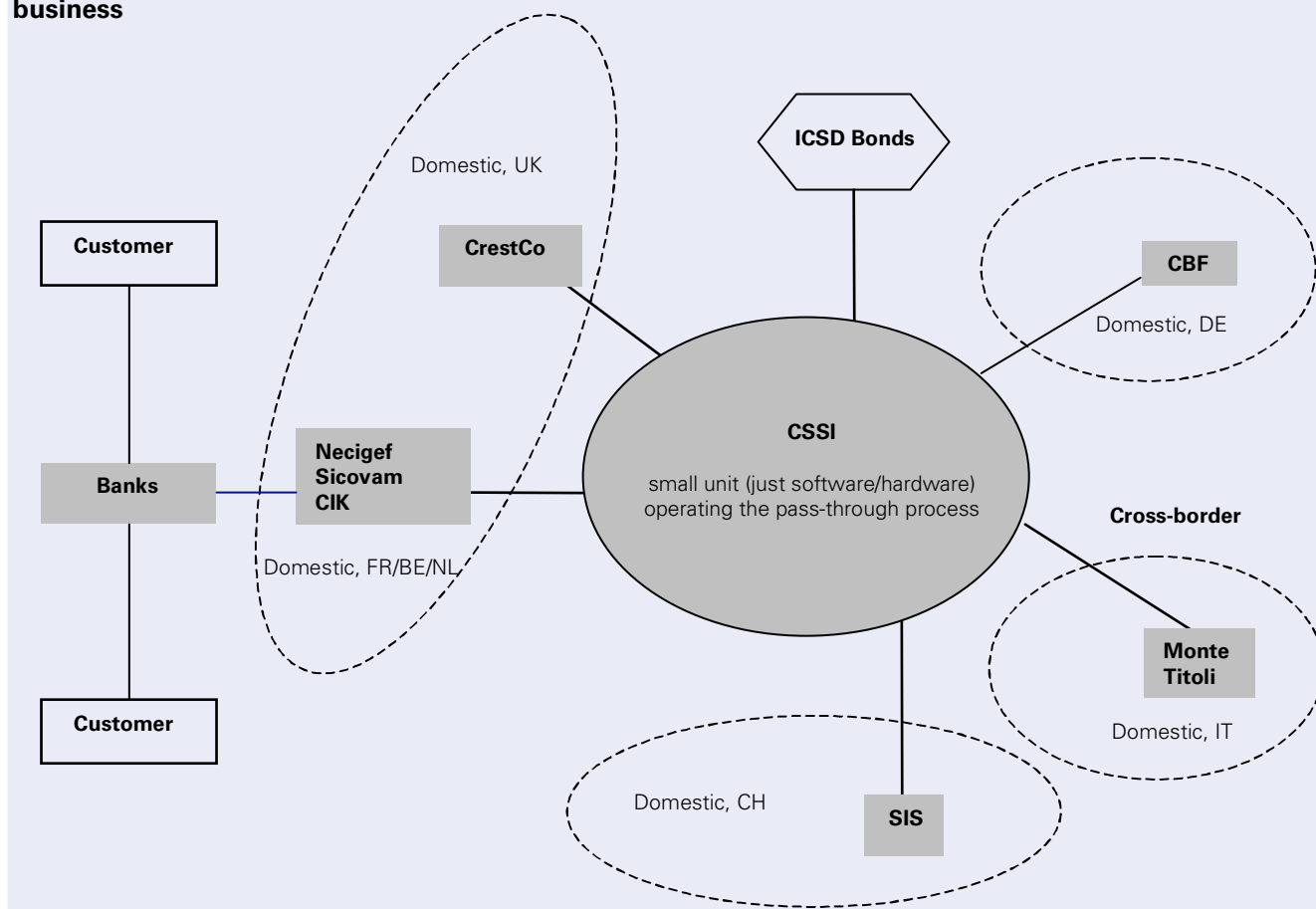
The concept of a CSSI

As the existing domestic businesses in the European countries are mostly efficient, secure and scalable, the focus of any action should be on a structure which provides competitive cross-border business especially for European equities. By history and tradition, the current ability of Euroclear and Clearstream to handle international equities business is perceived as being very limited as they were founded in the late 1970s to handle the Eurobond market developing at the time.

Needed: efficient structures for cross-border C&S of equities

Central Securities Settlement Institution (CSSI)

One access point for each broker/dealer, bank/market participant for both domestic and cross-border business



All recent acquisitions by both entities are clearly supported by the desire to improve and extend their expertise for equities.¹⁴ One possible solution could be the Central Securities Settlement Institution (CSSI) (Chart p. 24).

The idea of the so-called CSSI is to overcome the hurdles and inefficiencies in the cross-border equities business by establishing a cross-border operating organisation. This entity could either be based on an existing organisation or could preferably be a new company which should be owned and governed by the participating CSDs. Existing systems which could meet the requirements for European cross-border business should be leveraged. The CSSI would deliver a central linkage of the national systems (domestic CSDs). For the users, little would change as they would get access through the CSD of their choice (investor CSD) providing one single point of access for domestic and European cross-border business.

The formation of a Central Securities Settlement Institution to connect and interlink the domestic CSDs would be an attractive solution to process cross-border equity business only and would keep the domestic institutions as they stand. Settlement would take place in the issuer CSD, which provides that regulatory requirements are met. Since exclusively CSDs are clients of the Central Securities Settlement Institution, the CSD of choice (investor CSD) would be solely responsible for handling the relationship with its customers. Although this would require some investments by the participating CSDs, this approach is more preferable than placing the burden on all market participants. Savings are expected to be derived from the fact that only one organisation, the Central Securities Settlement Institution, is to implement and to manage the cross-border network. The market participants will instead continue to settle across borders via their domestic entry into this structure. The need to maintain several different access points will cease to exist.

The model described does not prefer the concept of vertical or horizontal consolidation over the other. Quite to the contrary, the concept leaves enough flexibility for both horizontal and vertical structures to participate in the envisaged structure and lets the market decide which concept shall prevail. Each domestic CSD remains in its current state and function and all access points can still be used. Compared to all other concepts, this will lead to the highest possible acceptance both on the part of existing CSDs and on the part of users. It is of significant importance to note that this model does not require the write-off of huge investments in various national settlement systems for domestic business. Reduced interconnection costs are expected regarding negotiations, link processing, interfaces, synchronisation of systems, data formats, link contracts, liquidity requirements and effective use of collateral. Finally, a Central Securities Settlement Institution leaves enough flexibility for a subsequent merger

CSSI would leverage existing organisations

Only limited investment needs and changes for existing CSDs

CSSI would be neutral as to the structure of existing national CSDs

¹⁴ This is because there are different needs and requirements regarding the clearing and settlement of bonds and equities. Equities – contrary to bonds – feature special attributes such as corporate actions and proxies requiring further complex post-trade services. Additionally, bonds are usually traded in large amounts per transaction while the overall number of equities traded is large in volume but comparably small in value. Bonds are also easier to settle because so many of them, like Eurobonds, are instruments payable to bearer, and therefore not covered by the local registration requirements and, by extension, not subject to the rules of national CSDs. As a consequence, the cross-border bond business is already handled by either Euroclear or Clearstream and thus has become quite international already.

of single CSDs if this is possible with regard to legal framework, systems and owners' choice. In addition, the application of the Central Securities Settlement Institution will achieve network externalities leading to further cost savings shared by the whole community as centralised linkage will help in standardising processes and practices.

Feasibility of a CSSI

The feasibility of this proposal depends on the backing given by the majority of market participants – especially small-volume financial service providers – and its soundness with regard to the financial aspect from both the users' and the shareholders' perspective. While a bilateral link might be too costly to be justified by the relatively small amount of transactions for a small CSD, a central link does not rule out the possibility of small players benefiting from economies of scale. Although the proposal to link the domestic systems via a Central Securities Settlement Institution does not lead to a substantial risk concentration in a single system and the safety or stability of systems shown in the domestic environment is not endangered, regulators' support for the process of consolidation would be necessary to, for example, urge market participants to develop uniform standards.

The concept of the Central Securities Settlement Institution provides a sound basis for further consolidation and integration of the European capital market because the linkage of domestic systems increases the pressure to apply common technical standards, harmonised rules and regulations, identical tax treatment and handling of country-specific taxes. This concept is supported by the local CSDs in Switzerland, Italy, Spain, the UK, and to – some extent – by the German CSD.

To sum it up, the vision is to develop common operating standards and principles such as the simplification of cross-border corporate actions and consistent legal frameworks regarding the transfer of title in securities. This may give rise to an evolutionary process and may spur the consolidation of the European clearing and settlement systems, because the CSSI could help national institutions to agree on uniform standards for settlement in central bank money and rules and regulations for automated securities lending and borrowing.

The Central Securities Settlement Institution would also meet the aforementioned requirements as regards risk management, governance and competition in its concept:

- **Risk:** The Central Securities Settlement Institution would solve the unnecessary complex bilateral links between all CSDs and thus help to align their work. But it does not add another service layer which does not already exist.
- **Governance:** The Central Securities Settlement Institution would be able to accommodate competing business approaches and concepts and leaves it up to the market to decide which model (e.g. horizontal or vertical integration) shall prevail.
- **Interoperability:** The CSSI would achieve integration by providing interoperability to perpetuate the whole system of different national CSDs. The first step to achieve interoperability is to agree on standards, communication protocols, common operation methods and practices. The Central Securities Settlement Institution would act as a catalyst for the desired standardisation. The market would still be able to agree on the concentration of different systems into a single system.

Feasibility of CSSI depends on backing by market participants

CSSI enjoys some support already ...

... and would probably set into train further consolidation

Concept would meet aforementioned requirements

Summary

Europe now follows an approach different from that of the American market. Today, most European markets are served by profit-oriented operators, whereas the US builds on the utility approach. Further rationalisation ought to recognise this.

There is no single CSD or collection of CSDs superior to others when it comes to cross-border transactions. Reducing the overall number of systems in the long run would reduce development and maintenance costs. In the short and medium term, high sunk costs for the depreciation of systems hinder a sudden switch to a single European CSD. Open access and egress will allow the exploration of market forces.

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