2 CROSS-BORDER SETTLEMENT

A. Advantages and Disadvantages

When we are considering the links between national CSDs (whatever model is adopted), we can only consider them in the light of the cross-border settlement arrangements that are available to investors who are based in one country and who wish to buy or sell the domestic bonds issued in another country. The cross-border settlement options used by market participants are the following, though these are not mutually exclusive and investors will usually use a range of them.

(i) **Direct access**. A participant in one market gains direct access to the settlement systems in another market.

(ii) **Local agent**. An investor uses a local custodian.

(iii) **Global custodian**. An investor appoints a global custodian (GC) to settle business in all overseas markets.

(iv) **ICSD**. An investor makes a settlement through one of the ICSDs.

(v) **Linkages between national CSDs**.

(vi) **Multinational CSD**.

In looking at the advantages and disadvantages of these cross-border settlement options, we are not attempting to make cost comparisons. This is dealt with under a separate heading later in this section. The advantages and disadvantages of the various options are summarized in Table 2.

Direct Access

In this model, nonresident investors are given access to the depository in which the securities are settled. This model is generally only available to investors who are also financial institutions (FIs). Although some depositories (e.g. Central Clearing and Settlement System in Hong Kong, China and Crest in the United Kingdom [UK]) permit individual (and corporate) investors to have direct accounts, no depository in the ASEAN+3 region or in Europe permits these holders to give direct instructions for settlement to the depository.

In most cases, direct access by financial institutions is also restricted to those located in countries where there is (at least) a memorandum of understanding between regulators to ensure that the depository participants are subject to equivalent regulatory oversight. The only market in the ASEAN+3 region that permits full direct access to overseas investors (i.e. permits them to directly give transfer instructions and make payments) is the central moneymarket unit (CMU) in Hong Kong, China (Hong Kong).

The major advantage of the direct access model is that the charge imposed by the depository on the participant is a domestic charge (i.e., there is no additional charge because the trade is a cross-border trade). Direct access also allows its participants to respond quickly to their customers' requests. However, the disadvantages are that the FI will need to:

(i) appoint and pay a settlement agent (bank) to settle funds with the depository on the due date and supply that agent with funds prior to the settlement date (or arrange and pay for an overdraft facility);

(ii) be conversant (and comply) with the procedures, including cut-off times, for each depository in which they are a direct participant;

(iii) directly organize any special procedures, e.g., tax reclamations, corporate event processing, reconciliation, regulatory reporting, etc.

Local Agents

Historically, local agents (i.e. a broker/custodian in the country of issue of the bond) have been used most frequently for cross-border settlements. In many Asian countries, the development of custody services by banks has been relatively slow, so investors who wished to invest in that country had little choice but to use the broker with whom they dealt as their settlement agent and custodian. The dematerialization and consolidation of securities into central depositories exacerbated this situation.

However, most institutional investors have found this situation unsatisfactory because brokers (throughout the world) who are not integral parts of universal banks tend to have relatively low capitalizations (compared with banks) and tend not to invest as heavily in technology as specialist custodians. The latter means that the interface between the broker and the institutional customer may be less automated and may lend itself less to straight through processing (STP). Therefore, the trend amongst institutional investors is to use a local broker only for trading. The broker will settle with the local market but then transfer the securities to a local custodian (appointed by the institution or his global custodian) for ongoing custody. This split of function (i.e. the broker undertaking the trading and a separate custodian holding the securities) has a further benefit in terms of risk management for the institution, in that receipt of securities or funds by the custodian acts as confirmation that the broker has actually executed the trade as instructed. Institutions normally instruct their custodians to receive stock from the broker on a delivery versus payment (DvP) basis but how far this is achievable in different markets varies considerably.

The major advantage of this procedure is that the local custodian will be aware of and manage local procedures (e.g. cut off times) and will take action in respect of special events (e.g. tax reclaims, corporate event processing, reconciliation, and regulatory reporting). In addition, where the agent is a bank, transferring funds will be more convenient and overdraft charges are likely to be lower (as the overdraft can be secured against the incoming securities).

Whether a broker or a bank, using a local custodian has a number of disadvantages. A major one is that investors must designate a separate local custodian for each country where investment will be directed. This means that a legal agreement must be negotiated with each custodian, usually operating under the law of the custodian's country, and interface arrangements that will differ from custodian to custodian must be put in place. This results in the investor receiving activity reports in many different formats, at many different times, and through many different media. All have to somehow be captured into the institutional investor's own system and be reconciled with their own records.

Another significant disadvantage is the growth of the need for due diligence in terms of the costs of settlement and custody. As organizations have focused on the costs of settlement, the need to ensure that an organization is getting the best value from its agents has increased. Thus, the management of many institutions now insists that custody is put out for re-tender on a reasonably regular basis (at least once every 3 years would not be uncommon). Where an institution invests widely and uses local custodians in each country this obviously represents significant overhead in terms of management time and effort.

Finally, the investor suffers custodian (counterparty) risk. If the agent goes out of business, for example, the investor may lose securities and/or cash, subject to any local investor compensation scheme.

Global Custodians

In recent years, institutional investors have increasingly used global custodians (GCs) that provide settlement and custody services in multiple markets through a single gateway.[5] In this situation, the investor communicates only with the global custodian, and it is the custodian's responsibility to make settlement arrangements in each market in which they are contracted. They may do this by becoming direct depository participants using one of their subsidiaries or associates in the relevant market or by appointing their own local or regional custodian.

The major advantage to investors is that they will receive integrated reports usually in a format that can be entered directly into their own systems through a single communication channel. These reports include the balance of total loan portfolio, particulars of securities lending balance, detailed dealing data, and corporate actions with relevant information. A further advantage (which may be difficult to directly cost) is that the investor has to negotiate only one contract, and the GC sits between the investor and the idiosyncrasies of the settlement systems in individual countries. The GC will understand taxation issues (and how to reclaim tax), whether

[5] Investors can also mix and match in that they may appoint some local custodians, a regional custodian (e.g. Asia or Europe) and a global custodian for everything else. They may also make different arrangements for different types of instruments.

the recording date is 1 or 2 days or some other period behind the date for interest payments. The utilization of a GC could also strengthen the investor's risk management capability. Another important advantage of using GCs is the availability of integrated multicurrency banking and cash management services as most GCs are large international commercial banks.

GCs provide investors with the convenience of a single interface for their international security transactions and consolidated cash management services. This service to the ultimate investor cannot be replicated by linking national securities depositories. However, GCs also have to hire local agents themselves and therefore when considering the merits and demerits of links, we will need to consider not only the advantages to the ultimate investor but also the benefit to the GC.

The major disadvantages of this model are that the investor suffers from custodian (counterparty) risk, although this is mitigated by fact that the major GCs are the major international banks.[6] In addition, the services of a GC are unlikely to be available in a cost effective manner to retail investors or to small institutions as they are interested in attracting clients with high volumes of business.

International Central Securities Depositories

International Securities

There are two ICSDs: Euroclear and Clearstream (formerly Cedel). These were originally established to settle bonds issued in United States dollars (US$) to international market participants based in Europe. The two ICSDs developed a linkage known as the bridge. This is a unique linkage that started as a single daily batch operation but now operates on a frequent batch basis that is almost equivalent to a real time link. The bridge was developed and improved at the insistence of the participants; its use is only marginally more expensive than settling within a single ICSD.

When a security is settled entirely within one or both ICSDs (e.g. a Eurobond), it is very similar to settling within a national CSD. The advantages for the participants are (i) the cost is very low because

[6] Currently the GCs that are active in emerging markets include Bank of New York, JP Morgan Chase, State Street, Citibank, BNP Paribas, Northern Trust, ABN-AMRO, Mellon, and HSBC. Standard Chartered Bank is a significant regional custody agent.

the ICSDs have large transaction volumes and (ii) the ICSDs offer a standardized and easily automated service. The major disadvantage is that the participation criteria for the ICSDs are very stringent, therefore generally only substantial organizations (mainly banks) can use them. Also, clearly national government securities and CBs issued into national markets are not settled entirely within an ICSD.

Domestic Securities

Domestic government bonds and CBs issued into domestic markets (or into both the international and the domestic market) are settled through links between the ICSD and national depositories. The advantage of using an ICSD for an organization that is already an ICSD participant is that it removes the necessity for establishing local custody arrangements in markets where there is a low volume of transactions. ICSD fees, although much higher than those for intra-depository movements, are likely to be less than those charged by a GC. There are however, a number of problems in using the ICSDs for the settlement of domestic bonds in the ASEAN+3 region. These include the following.

(i) Not all of the ASEAN+3 markets have settlement links with one or both of the ICSDs, and not all domestic currencies are eligible currencies.

(ii) The movement of local currency to settle transactions in the ICSDs suffers from time zone problems.

(iii) The ICSDs set their own participation criteria that are not linked to the regulatory structures of any particular capital market; these criteria are quite onerous in terms of capital and cannot generally be met by organizations other than multi-national banks and institutions.

Links Between Domestic Central Securities Depositories

The European Central Securities Depository Association (ECSDA) recommended that national depositories develop links between themselves without using an ICSD as an intermediary. The mechanism is explained in more detail in Chapter IV Section D. Although this route was favored by ECSDA (on which the European national CSDs are represented but the ICSDs are not) only the linkage between the UK settlement organization CREST and the Swiss international settlement organization InterSettle actually became operational.

The advantage of this type of linkage is that access to settling eligible securities in all the linked markets is available to all national market participants. The proponents also maintained that it would prove in the longer term to be more cost effective, but this has not been demonstrated one way or the other in practice.

The disadvantage is that payment needs to be made in the national currency. This will mean the participant must either use a payment agent in the country of the security or must make the required funds available on a day prior to the settlement date (thus increasing the period during which the participant suffers settlement risk).

Multinational Central Securities Depositories

In Europe the links between different national CSDs and between the national CSDs and the ICSDs have now been replaced by the development of multi-national clearing and settlement systems through a merger or friendly take-over of the national CSD systems. This development is a result of pressure from market participants to reduce both costs and settlement risks. (see "Costs" later in this section and chapter III) As the European Union 2001 reported,[8] "Moving securities from one system to another will necessarily be more expensive than staying within one system." In addition, although a Bank for International Settlements (BIS) 1992 study[9] concluded that cross-border risks are not different in type from the risks inherent in national settlement systems, "These inefficiencies and the relatively high costs they impose on counterparties in cross-border securities transactions appear to be inherent in cross-border settlements." Thus links (both those involving an ICSD and those between national CSDs) have been replaced by amalgamations between national CSDs and ICSDs to form multinational CSDs. The advantages of using a multinational CSD are the following.

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7 *The Securities Settlement Industry in the EU. Structure, Costs and the Way Forward.* Karel Lannoo and Mattias Levin. The Centre for European Policy Studies. December 2001.

8 *Delivery versus Payment in Securities Settlement Systems*. The Committee on Payment and Settlement Systems of the Central Banks of the Group of Ten countries. Bank for International Settlements. September 1992.

Table 2: The Advantages and Disadvantages of Various Settlement Arrangements

	Direct Access	Local Custodian	Global Custodian	Existing ICSD Domestic Securities	Linkages between Central Securities Depositories	Multi National Central Securities Depositories
Access	Selected financial institutions only	All investors	All investors although in practice usually restricted to financial institutions, corpora-tions, or high net worth individuals because of the cost.	International financial institutions only.	All participants in domestic central securities depositories (CSDs) that are part of the multi-national CSDs.	All participants in domestic CSDs that are part of the multi-national CSDs.
Advantages	The depository charges are domestic.	Local custodian deals with domestic depository interface and special items such as tax reclaiming, corporate events, reconciliation, regulatory reporting, etc.	Single interface point for all aspects of settlement	Removes the need to establish individual arrangements for linked markets.	Participants use the same communication links and facilities to settle the domestic and overseas securities eligible for the linked depositories..	Participants use the same communication links and facilities to settle a wide range of domestic and overseas securities.
		A single agent will handle securities and cash.	The provision of additional services such as settlement date accounting, multi-currency cash management			Avoids the need for local or global custodians and thus avoids custodian risk.
Disadvantages	A settlement agent (bank) will be required to settle the funds.	The financial institution (FI) must negotiate a unique agreement for each market and set up a separate communication channel.	Custodian risk (although this is mitigated by the identify of the active global custodians).	Access is restricted.	A settlement agent (bank) will be required to settle the funds or to provide funds prior to the settlement date.	May not be possible in the medium term in the ASEAN+3 region due to lack of harmonization.
	The FI must be aware of procedures for each depository in which he is a participant.	The FI will suffer custodian (counterparty) risk, subject to any local investor compensation scheme.		Limited links with ASEAN+3 markets and limited eligibility of these currencies.		
		The FI must directly manage special items such as tax reclaiming, corporate events, reconciliation, etc.				

(i) All participants in the national CSDs that are part of the multinational CSD are able to access the services.

(ii) Cross-border transactions (of securities in the participating national CSDs) are settled in exactly the same way as domestic securities; indeed they become domestic settlements.

(iii) The charge for all transactions within the expanded depository should be the same.

(iv) There is no requirement for the use of local or global custodians.

(v) The multi-national CSD can develop a small number of links with other multi-national CSDs.

In Europe it is difficult to identify any disadvantages of a multinational CSD. However it may not be possible to develop such an organization in the ASEAN+3 region in the medium term due to the lack of harmonization in legal and regulatory structures and to the lack of access to national payment systems.

B. Costs

It is notoriously difficult to establish real settlement costs; therefore, comparisons based on cost are not realistically possible. Neither global nor local custodians publish tariffs as they are negotiated individually, customer by customer. The price charged to a specific customer will depend on (i) volume, (ii) the level of service provided, and (iii) the prestige of the customer and how much the custodian wants his/her business. It is therefore not possible to compare the direct fees charged by a depository for a cross-border service with the fees charged by a custodian.

Custody service charges in the ASEAN+3 region are generally higher than those in Europe. Table 3 shows the custody service charges for selected markets of two different GCs in Tokyo compared with those of Euroclear Bank and the Clearstream. The costs are apparently more expensive, but clearly the users of GCs believe that they get value for money as the various value-added services provided by these two GCs include not only portfolio management information but also cash and risk management. These value-added and customer-tailored custody services by the GCs lead to higher charges, but at the same time they are clearly regarded as competitive by their customers compared with those services provided by either Euroclear Bank, Clearstream or a local CSD.

Table 3: Service Charges of Selected Global Custodians in Tokyo

	Fees Charged by Global Custodian A forSelected Markets (Index)		Fees Charged by Global Custodian B for Selected Markets (Index)	
	Safekeeping Fees	**Transaction Fees**	**Safekeeping Fees**	**Transaction Fees**
Clearstream LU	n.a.	n.a.	100	100
Euroclear Bank	100	100	n.a.	n.a.
Switzerland	200	approx. 280	75	approx. 430
Germany	100	100	125	approx. 170
France	200	200	125	approx. 430
United Kingdom	200	150	100	100
United States	100	100	150	100
Japan	approx. 60	approx. 70	75	approx. 130
Indonesia	400	approx. 530	n.a.	n.a.
Singapore	400	400	312.5	300
Thailand	400	approx. 280	n.a.	n.a.
Malaysia	400	approx. 280	400	800
Republic of Korea	1000	150	n.a.	n.a.
PRC	1000	approx. 530	n.a.	n.a.
Philippines	1000	approx. 530	n.a.	n.a.

Source: Gathered informally from Global Custodian Bank A and B in Tokyo
Basis for calculation of the figures:
All commission rate are applied to pension fund (both for equities and bonds)
Safekeeping and transaction fees of A global custodian are indexes. (Euroclear Bank = 100)
Safekeeping and transaction fees of B global custodian are indexes. (Clearstream LU = 100)
n.a. = not available

As stated in a report from The Centre for European Policy Studies:[9]

> It is very difficult, if not impossible, to compare settlement fees, as they vary according to market, instrument, mode of payment, etc. Moreover, it makes no sense to compare settlement fees in isolation. CSDs and ICSDs compete by offering a whole package of services, of which settlement is only one. Moreover,

[9] Lannoo, K. and Mattias Leven. 2001. Op. Cit.

> the client faces other costs than fees, e.g. back-office expenses and the cost of maintaining multiple interfaces and systems. Therefore, a client assessing the cost of using a particular CSD looks not only at the settlement fees but also at the overall package being offered. Other cost elements are very difficult to quantify. For example, an assessment of the cost of cross-collateralisation would first involve a careful analysis of the differences in the legal certainty of the transfer of title, followed by a cost assessment.

The report also noted that, "Moving securities from one system to another will necessarily be more expensive than staying within one system."

The report goes on to state that,

> .....numerous factors make the task of comparing fees extremely difficult and that of establishing and comparing the pricing structure is virtually impossible. …Nevertheless, examples of the difficulty of establishing one single fee are presented in the table below. As can be seen, it is difficult to pin down a typical domestic/internal transaction and compare it with a similarly typical external/cross-border transaction.

Equity Settlement Fees of CSDs

Country	Settlement Agent	Fee for internal transaction (•)
Denmark	VP	0.11 - 2.2
Germany	Clearstream Banking, Frankfurt	0.25-0.40
France	Euroclear, France	0.30-1.13
Italy	Monte Titoli	0.72
United Kingdom	Crest	0.32-0.90
United States	DTCC	0.04
Switzerland	SegaInterSettle (SIS)	0.26

The ranges are explained by the various discounts (sliding scale, etc.) offered to clients by their operators. The picture becomes more complex when looking at the fees of ICSDs, which actively settle international securities as well (e.g. eurobonds). The two tables below provide an overview of the settlement fees charged by two ICSDs, Clearstream and Euroclear. The fees are divided into three groupings:

Settlement Fees of Clearstream for Selected Markets (•)

	Internal				External			
	International		Domestic		International		Domestic	
	Equity	Bond	Equity	Bond	Equity	Bond	Equity	Bond
Clearstream LU	2.00	1.35	2.00	1.35				
Euroclear Bank					2.71	1.35	2.71	1.35
Switzerland					32.47	32.47	27.60-48.70	21.65-27.06
Germany			2.16	2.16	32.47	32.47	21.65	21.65
France					32.47	32.47	13.53–27.06	13.53-27.06
United Kingdom					32.47	32.47	10.82	10.82
United States					0.54-2.16	0.54-2.16	4.33–8.66	6.49-10.82

Source: The Securities Settlement Industry in the EU

Settlement Fees of Euroclear for Selected Markets (•)

	Internal				External			
	International		Domestic		International		Domestic	
	Equity	Bond	Equity	Bond	Equity	Bond	Equity	Bond
Clearstream LU					1.03-2.71	1.02-2.71		
Euroclear Bank	0.49-2.16	0.49-2.16						
Switzerland			0.60-2.71	0.60-2.71			9.74-16.23	5.94-10.80
Germany			0.32-1.73	0.32-1.73			4.33-8.66	1.52-6.49
France			0.60-2.71	0.60-2.71			23.81-32.47	7.58-21.65
United Kingdom			0.54-2.16	0.54-2.16			6.49-10.82	9.74-16.23
United States			0.54-2.16	0.54-2.16			4.33-8.66	6.49-10.82

Source: The Securities Settlement Industry in the EU

inside the system or outside (internal vs. external), international instruments or domestic instruments, and finally equity 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 (i.e. cross-border) transactions are more expensive than internal (domestic) settlements.

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.

This would appear to demonstrate that even with their large spending on technology and substantial volumes going through the links, the ICSDs have not been able to make cross-depository transactions comparable in cost to within depository transactions.

Volume is clearly an important element in terms of cost structures. Settlement systems are highly capital intensive and front loaded (i.e., it costs a significant amount of money to establish a depository/settlement system). Once established, the running costs are relatively inflexible and do not vary significantly with the volumes passing through the system. Clearly, significant volume increases, such as were seen during the "dot com" boom, caused some depositories to spend to upgrade hardware and systems to meet anticipated volumes of more than a million transactions a day. However, in general, depository and settlement systems are volume independent. Therefore the cost per transaction, which is what concerns the depository user, is dependent on the volume passing through the system. Thus the greater the volume the lower the costs. This is borne out by the EU report mentioned above which found that European costs were, on average, around twice US costs. It is also demonstrated by the low cost of settling bonds in Euroclear and Clearstream where international volume has become centralized.

C. Advantages of Links between Central Securities Depositories

There are a number of ways in which CSDs are able to link: the networked model (recommended by ECSDA), the hub and spoke model, and a single CSD providing settlements for a number of markets. The development of the different type of links and the way in which they operate is explained in detail in Chapter IV, however, whichever model for CSD linkage is adopted, the principle is that a participant in his domestic depository can hold overseas securities in his domestic depository account through the interface between his domestic depository and the home depository of the security concerned.

Access

A major advantage of links between national CSDs is that the link is available to all participants in the linked depositories. This means that all members of a particular market will be able to offer cross-border investment facilities to their customers. This should be done on the basis of "know your client" so that foreign investments are not offered inappropriately. Furthermore, the broker would need to understand the risks associated with investment in the target market and the target currency. However, within these limitations, smaller market participants would be able to avail of these services. Such market participants would be unlikely to secure a good deal from a GC because their volumes would be too low and they would be unlikely to have the resources to negotiate individually with local custodians in all the markets in which their customers might be interested.

Efficiency

The use of a local link between an institution's local depository and the depository in the country of the securities issuer should be more efficient than using one of the ICSDs. Tables 4 and 5 show the links between the ICSDs and local markets. Although the number of Asian markets is much smaller than the number of European markets, all the markets covered by this report, with the exception of the PRC, are linked with one or both of the ICSDs. However, Table 4 also shows the cut-off times, and here we can see a considerable difference between Europe and Asia. Whilst the cut-off times for European links are basically on the settlement day, the times for links to Asia and the Pacific are generally on settlement date minus one. This is clearly due to the time differences between the Asian and Pacific region and the European base of the ICSDs.

To illustrate the time zone problem, consider the settlement process of an Asian bond that is denominated in Hong Kong dollars. Hong Kong is 7 hours ahead of Brussels where Euroclear is located. Assume that the settlement date of the bond is October 2 in Brussels. In order to finalize the settlement by that date, Euroclear currently mandates that the buyer and seller deposit money and security in a common depository of Euroclear in Hong Kong, HSBC bank, by October 1, which is a day before the settlement date. After receiving a notification from HSBC overnight, Euroclear Bank in Brussels completes the security settlement by 09:00 on October 2 (16:00 in Hong Kong). Then, the seller in Hong Kong can withdraw Hong Kong dollars, and the settlement can be finished by October 2.

Instead of depositing money and securities a day before the settlement date, if the buyer and seller want to settle securities by using the RTGS system on October 2 in Belgium, the seller may not be able to withdraw money by October 2. For example, by the time the RTGS settlement is completed by 15:00 on October 2, it is already 22:00 in Hong Kong, and the bond seller has to wait until the next day to withdraw his/her money. This is one reason why Euroclear mandates that traders deposit money and securities a day in advance of settling bonds that are denominated in Asian currencies. Otherwise, it cannot secure a settlement date. If bonds are denominated in European currencies or in US$, security and payment settlement can be completed on the same day through the RTGS system as there is no time difference, and the time difference between Europe and the Americas works in favor of the user between security settlement and payment settlements. The time zone problem implies that investors have to bear the extra cost of losing liquidity for a day when trading Asian currency-denominated bonds.

The comparison between using a local linkage and a link with an ICSD is not the only comparison that must be made. There must also be a comparison between a local linkage and the use of a global (or local) custodian. Most GCs offer two services that would significantly improve the efficiency of the settlement operation from the perspective of the customer. These are (i) settlement day accounting and (ii) a full cash management and collateralization program.

Settlement day accounting means that the custodian credits the investor with securities and/or cash on the settlement date of the transaction. This is not dependent on the local custodian having received securities or cash through the local settlement system or having advised the GC that they have done so. The GC, through the local custodian will have checked in advance that the counterparty in the local market agrees to the details of the trade (through whatever mechanisms are available in the local market) and will take the view that the settlement will occur. The contract between the investor and the GC will usually specify that the credit of securities and/or cash may be reversed if the trade ultimately fails to settle, but the author has never actually known this to occur. If the GC or his local agent has made a mistake, then they are likely to correct the mistake at no cost to the customer.

Thus, with settlement day accounting, the customer has access to the funds through his GC on the settlement date of the transaction, regardless of clearance in the local market. GCs usually offer settlement day accounting in all established markets. It would only be in very difficult markets where it would not be available to a customer.

Table 4: European Linkage Used for Bonds

Country	Type of Bonds	Settlement/ Depository	Links [a] and Notes
Austria	All debt	Oesterreichische Kontrollbank AG (OeKB)	CBF (Germany), CBL in Luxembourg, Euroclear Nederlands, SIS in Switzerland, Euroclear Bank (Brussels), Euroclear France, Monte Titoli (Italy) and Keler (Hungary).
Belgium	Corporate Debt Public sector debt	Euroclear Bank National Bank	
Denmark	Government and corporate bonds	Danish Securities Centre (Vaerdiapapircentralen or VP)	Has links with the Swedish CSD (VPC) and Euroclear and Clearstream.
Finland	Money market instruments and most other debt securities Some debt securities	Arvopaperikeskus (APK) – RM systemAPK – OM system	The largest shareholder in APK is OM Gruppen AB (15.6%), the operator of the Stockholm Stock Exchange. APK has links with CBF (Germany) and Euroclear France
France	All debt	Clearnet and Euroclear France	Euroclear France settles in both Central Bank money and commercial bank money.
Germany	All debt	Clearstream	
Greece	Corporate bonds Government debt	CSD SA Bank of Greece Securities Settlement System (BOGS)	Is managed by the Bank of Greece and has no direct links with foreign settlement systems or CSDs. (The links with Euroclear and Clearstream are indirect.
Ireland	Corporate bonds Government bonds	Crest Euroclear	Replaced the Central Bank of Ireland Securities Settlement Office in December 2000.
Italy	All debt	Monte Titoli	Monte Titoli has links with CBF, OekB (Austria), Euroclear Bank (Belgium), CADE (Spain), Necigef, CBL in Luxembourg, Euroclear France, SIS in Switzerland.
Luxembourg	All debt	Clearstream	Through CBL which is part of Clearstream.
Netherlands	Corporate bonds	Necigef	Necigef is wholly owned by AEX Clearing and Depository which is in turn a subsidiary of Euronext.
Portugal	Corporate bondsCentral bank paper, Treasury Bills, ECB Debt and commercial paper.	Interbolsa| SITEME	Interbolsa is owned by Euronext Lisbon. SITEME is owned by Banco de Portugal.
Spain	Public and Private Debt	Caja General de Depositos (CADE)	CADE is managed by the Banco de Espuma. It has links with Italy (Monte Titoli), the Netherlands (Euroclear Nederlands), France (Euroclear France) and CBF (Germany)
Sweden	All debt	VardePappersCentralen (VPC)	VPC has links to the Danish system VP for the settlement of transactions in government bonds.
United Kingdom	All debt	*Crest* Crest is now part of the	Euroclear group.

[a] Links with the ICSDs (Euroclear and Clearstream) are not shown as these are recorded below.

Table 5 - Euroclear Links for Debt Securities

Asia Pacific	Input Deadline External Instructions		Buy Local/Sell Euroclear Same Day	Buy Euroclear Sell Local Same Day	Buy Local Sell Local Same Day	Euroclear Depository	Central Securities Depository
	Against Payment	Free of Payment					
Australia	S-1 15.00	S-1 19.45	*	*		Westpac Banking Corporation Ltd. Sydney	Austraclear
Hong Kong, China	S-1 19.45	S-1 19.45	* [h]	*		HSBC	CMU
Indonesia	S-2 19.45		*	* [h]		Deutsche Bank AG	
Japan	S-1 15.00	S-1 19.45	*	*		The Bank of Tokyo	The Bank of Tokyo – Mitsubishi Ltd or Mizuho Corporate Bank Ltd - book-entry
Malaysia	S-2 19.45		*	*		Deutsche Bank (Malaysia) Berhad	Bank Negara Malaysia (SSTS) MCD [n]
New Zealand	S-1 15.00	S-1 19.45	*	*		Westpac Banking Corporation	Austraclear New Zealand
Philippines	S-1 10.00	S-1 19.45	*	*		Citibank NA	ROSS
Singapore		S-1 07.00	*			The Development Bank of Singapore Ltd	DCSS
Thailand	S-1 06.30		*	*		Bangkok Bank	TSD
Europe							
Austria	S14.30	S15.00	*	*	*		OeKB
Belgium	S15.00 S13.30	S15.00 S14.30	* *	* *	* *	Direct link operated by Fortis Bank [a]	BNB CIK (Euronext Brussels)
Denmark	S08.30	S17.30 [b] S08.30 [c]	*	*	*		VP
Finland	S09.30	S09.30	*	* [d]	–	Nordea Bank Finland Plc	Finnish Central Securities Depository Ltd APK (RM)
France	S15.00	S16.30	*	*	*		Euroclear France (RGV)
Germany	S12.00	S12.00 [e]	*	*	*		Clearstream Banking AG Frankfurt

S = intended settlement date
[a] For corporate debt securities in physical form.
[b] For receipts.
[c] For deliveries.
[d] On the books of the depository.
[e] No instruction is required for free of payment receipts.

Table 5 - Euroclear Links for Debt Securities

Europe	Input Deadline External Instructions		Buy Local/Sell Euroclear Same Day	Buy Euroclear Sell Local Same Day	Buy Local Sell Local Same Day	Euroclear Depository	Central Securities Depository
	Against Payment	Free of Payment					
Greece	S08.30 [f]	S08.30	*	*	-	Citibank NA	Bank of Greece
Ireland	S17.30	S17.30	*	*	*		Euroclear Bank[g]
Italy	S-1 15.30	S15.30	*	* [h]	* [i]	Direct Link operated by Unicredito Italiano SpA	Monte Titoli SpA
The Netherlands	S14.30	S17.30 [b] S16.30 [c]	*	*	*	Direct Link operated by ABN AMRO Bank NV	Euroclear Netherlands
Norway	S-1 13.30	S-1 13.30	*			Direct Link operated by Nordea Bank Norge ASA	VPS
Portugal	S15.00 [i]	S17.00	* [j]	* [j]	* [j]	Banco Commercial Portugues	CVM
Russia		S10.00	*	*		Vneshtorg-bank	
Spain [11]	S13.30	S17.30 [b] S13.30 [c]	*	*	*	Banco Santander Central Hispano	Banco de España
Sweden	S-1 14.30	S-1 14.30	*	*	* [j]	Skandiana-viska Enskilda Banken AB	VPC
Switzerland	S12.30[l]	S16.00	*	*	*	Credit Suisse First Boston	SIS
United Kingdom	S14.30	S14.30 S17.30 [b] S-1 19.45 [c]	*	*	*	Bank One NA	Crest [m] CMO
Americas							
Argentina	S16.00	S17.30		*		Citibank NA	Caja de Valores
Canada	S16.00	S17.30	*	*	*	Royal Bank of Canada	CDS
Mexico	S16.00	S17.30	*	*	*	BBVA Bancomer S.A.	Indeval
United States	S16.00	S17.30	*	*	*	The Chase Manhattan Bank	Fedwire
Africa							
South Africa	S-1 07.30		*			Standard Corporate and Merchant Bank	The Central Depository Limited

[f] For instructions on the books of the depository. For instructions with another counterparty the deadline is S06.30 for free of payment instructions in dematerialized securities and S-1 12.30 for other instructions.
[g] Euroclear Bank is the settlement system and Bank of Ireland is the registrar.
[h] Free of payment
[i] For OTC transactions S-1 17.00 for stock exchange transactions
[j] For OTC transactions
[k] For government debt securities
[l] Against payment in CHF, S13.00 for EUR
[m] For gilts and foreign supranational debt securities
[n] For corporate debt securities
Source: http://www.euroclear.com

All the GCs are large international banks. They are therefore able to offer a comprehensive range of cash management facilities to their customers. These would include foreign exchange trading and collateralized lending. So an investor who has bought stocks in one market and sold them in another may use the funds (credited through settlement day accounting) to satisfy a future foreign exchange transaction with the bank and settle the trade in the other market.

New Markets

Most of the markets that are the subject of this study have links with one or both of the ICSDs. Only the PRC and the Republic of Korea do not have direct or indirect links with Euroclear (see Table 4). However, many of the newer markets that are developing or that are likely to develop currently do not have such links and will find it quite difficult to develop them. The ICSDs are not charities and impose quite strict conditions and costs on potential new members. If regional links were to develop, it might be possible to use that mechanism as a conduit to Europe and the US for newer, less developed markets.

D. Hurdles to Linkage

Global Players

Bond markets in most of the world are professional markets. In some countries such as France, there is an active retail market, but even there, the volume on the retail market is dwarfed by the volume on the interbank (inter-institutional) OTC market. The banks that are active in the bond markets in the region are increasingly becoming part of an international bank. Table 6 lists the international organizations that are active in both the Hong Kong and Singapore markets.

International banks are direct members of the ICSDs and have a local presence in the markets in the region in which they are interested. Decisions concerning local bond trading will be taken in the local office where information about the state of the market is most up-to-date. However, decisions concerning the amount of capital to be committed to each market and the policy decisions related to whether or not debt is bought or traded in each market are usually made by either a regional or an international head office.

Table 6: International Organizations Active in the Hong Kong, China and Singapore Bond Markets

Bank[1]	Hong Kong Exchange Fund Bills: Market Makers[2]	Hong Kong Exchange Fund Bills: Recognized Dealers[3]	Singapore: Primary Dealers
ABN AMRO Bank	*		*
Bank of America		*	*
Barclays Bank	*		*
BNP Paribas	*		
Citibank	*		*
Citicorp	*		
Credit Agricole	*		
Credit Suisse First Boston		*	*
DBS Bank	*		*
Deutsche Bank	*		*
Hong Kong and Shanghai Bank	*		*
J.P.Morgan Securities	*		
OCBC		*	*
Societe Generale	*		
Standard Chartered Bank	*		*
UBS		*	
United Overseas	*		*

1 The international name is shown rather than the specific entity active in either Hong Kong or Singapore.
2 This is not a complete list. Primary dealers are only shown if they are either a recognized international name or are active in both Hong Kong and Singapore.
3 This is not a complete list. Recognized dealers are only shown if they are a primary dealer in Singapore.
Source: http://www.hkma.gov.hk; http://www.mas.gov.sg

Once the global (or regional) allocation has been made, the detailed investment decisions will be passed to the relevant local market. The dealers in that market will have established settlement arrangements in that market, and therefore there is little scope for the use of links by the international banks as they do not provide them with any benefits.

The links must therefore be aimed at local institutions that wish to broaden the scope of their investments and at organizations (usually brokers) that act for retail investors. However, the problem here is that these types of organizations do not usually (at least in the current environment) trade in regional debt. The development of regional bond markets has been promoted in order to increase the regional savings that are channeled to investment in ASEAN+3. As we can see in Table 7, total savings as a whole were more than 30% of total gross domestic product before the Asian crisis, but the region's investment demand was so strong that it made the East Asian countries net capital importers.

After the 1997 crisis, most of the East Asian countries turned from net capital importers to net capital exporters as they started accumulating current account surpluses that were added to their foreign exchange reserves. As a result, total reserve holdings of 13 East Asian economies amounted to US$ 1.2 trillion (tables 8 and 9). Most of these reserves have been invested in safe and liquid assets such as United States (US) Treasury bonds and supranational bonds. At the same time, East Asian borrowers have been borrowing from international financial markets at higher costs: East Asia as a whole has been an importer of safe assets and an exporter of risky assets. Such a pattern of capital flows also impedes the development of capital markets in the region[10] as the imports of safe assets and exports of risky assets deprive East Asian investors of opportunities for better management of the risk-return trade-off in their asset portfolios.

Table 7: Investment/Gross Domestic Product and Savings/Gross Domestic Product Ratios in Asia

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
					Investment/GDP Ratio (%)					
People's Republic of China	43.30	41.19	40.83	39.58	38.22	37.71	37.41	36.33	38.49	40.27
Indonesia	29.48	31.06	31.93	30.69	31.75	16.77	11.37	16.10	17.75	15.66
Republic of Korea	35.51	36.51	37.67	38.87	35.97	25.00	29.12	31.00	29.33	29.08
Malaysia	39.18	41.20	43.64	41.48	42.97	26.67	22.38	27.18	23.95	23.57
Philippines	23.98	24.06	22.45	24.02	24.78	20.34	18.75	21.17	20.65	19.30
Singapore	37.39	33.10	34.17	35.79	39.23	32.33	32.04	32.04	24.86	21.16
Thailand	40.01	40.25	42.09	41.82	33.66	20.45	20.50	22.81	24.09	23.94
Hong Kong, China	27.58	31.76	34.66	32.06	34.52	29.15	25.26	28.08	25.91	23.38
					Savings/GDP Ratio (%)					
People'sRepublic of China	41.73	42.69	42.48	41.07	41.47	40.77	39.41	38.97	39.45	40.70
Indonesia	32.46	32.20	30.59	30.08	31.48	26.53	19.45	25.56	25.98	22.24
Republic of Korea	36.03	35.43	36.53	35.73	35.78	37.87	35.77	33.92	31.89	31.38
Malaysia	39.08	39.60	39.71	42.86	43.89	48.67	47.43	47.16	42.35	41.91
Philippines	13.76	14.85	14.53	14.60	14.21	12.40	14.31	17.30	18.07	19.47
Singapore	45.19	47.97	50.23	50.97	51.99	53.35	49.68	47.90	43.98	43.93
Thailand	36.02	37.10	37.27	36.48	35.66	35.23	32.87	33.20	32.16	32.78
Hong Kong, China	33.55	32.01	29.13	29.66	30.25	29.40	29.83	31.67	29.60	31.11

Source: ADB Key Indicators 2004

10 As pointed out by Oh et al (2003)

Table 8: Foreign Reserves in Asia
(US$ Billion)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
People's Republic of China	22.39	52.91	79.38	107.00	142.70	149.10	157.70	168.20	215.60	268.41
Indonesia	11.26	12.13	13.71	18.25	16.59	22.71	26.46	28.50	27.25	-
Republic of Korea	20.23	25.64	32.66	34.04	20.37	51.97	73.99	96.13	102.70	120.81
Malaysia	27.25	25.42	23.77	27.01	20.79	25.56	30.59	29.52	30.47	34.58
Philippines	4.68	6.02	6.37	10.03	7.27	9.23	13.23	13.05	13.44	165.06
Singapore	48.36	58.18	68.70	76.85	71.29	74.93	76.04	80.13	75.37	81.37
Thailand	24.47	29.33	35.98	37.73	26.19	28.83	34.05	32.02	32.35	38.92
Hong Kong, China	42.99	49.25	55.40	63.81	92.80	89.65	96.24	107.50	111.10	-
Japan	98.52	128.80	183.20	216.60	219.50	215.40	285.90	354.90	395.10	451.46

Source: International Monetary Fund. International Financial Statistics

Table 9: The Share of Asian Reserve Holdings in the World
(US$ Billion)

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total Reserves in Asia	315.43	412.20	520.70	617.90	649.30	701.90	837.50	957.00	1061.21
Total Reserves in World	994.10	1142.80	1361.80	1537.70	1602.10	1651.20	1975.80	2105.80	2201.10
Total Reserves in Asia/ World (%)	31.73	36.07	38.23	40.19	40.53	42.51	42.39	45.45	48.21

Source: International Monetary Fund. International Financial Statistics

Another problem with promoting links may be that within the various markets in the region, there is no institution that is working to do so. In the European and American markets, we have seen the stock exchanges working to develop links for the trading and settlement of equities driven by the requirements of their users to reduce the cost and risk involved in cross-border settlements. CBs listed on the relevant exchange may also be settled across these links although internationally, the secondary market trading of CBs either domestically or across borders is relatively inactive. Developing links is assisted by the fact that representatives of exchanges and depositories meet representatives of other exchanges and depositories at both international and regional forums.

In most cases, the settlement organization for government bonds (the most liquid bonds in most markets) is operated by the central bank. Their focus is generally on domestic financial management, and while the purchase of their bonds by foreign investors may be encouraged, secondary market trading by foreigners is not an area that they particularly wish to foster. Central bank representatives also meet on a regular basis, but in general these meetings seem to be more concerned with regulation and risk management than with developing links for bond settlement systems. As practitioner-driven change is always preferable to an institutionally imposed change, it might be possible to identify a regional practitioner group that would promote regional links for bond settlements (and possibly trading).

Legal and Regulatory

a. Securities Laws and Regulations

Clearly each market has its own regulatory structure. It is important to establish that the regulations within that market do not preclude the national CSD from forming international links and that the participation criteria for the settlement systems (both for government and CBs) permit regional market participants in addition to other regional depositories. For example, in the US during the 1980s, it was very difficult for the Depository Trust and Clearing Company (DTCC) to accept overseas depositories as participants and to link with the depository operated by the London Stock Exchange (LSE). The DTCC therefore had to form a separate subsidiary to act as a legal bridge. The first measure must therefore be to review the laws, regulations, and depository rules of each country to ensure that links are legally possible.

b. Master Agreement

Another difficulty in establishing links is drawing up of and concurring on a legal agreement. In most countries, the legal establishment is not very aware of the intricacies of securities depositories and settlement systems, and drawing up agreements can be an expensive and time consuming process. The use of master agreements for such things as repos in Europe and America are well established. It would therefore be beneficial if a master agreement could be drawn up for depositories that wish to link to be used as a template by regional depositories. It would have the added advantage that institutional investors would only have to review one basic agreement (and small local differences) when considering whether to take advantage of a particular linkage.

c. Finality of Settlement

It is very important in all settlement systems for the participants to know when securities and cash are settled with no opportunity of recall. The laws of each country and the regulations of each system must therefore identify when a settlement is final.

d. Other Laws

When investors choose to invest in a foreign country they do so under the clear understanding that the securities are subject to the laws and regulations of that country. However, these laws and regulations are not always entirely transparent, e.g., in some countries if an investor who holds securities in that country dies, the securities become subject to the inheritance laws of that country and, at the very least, death needs to be proven in that country. Therefore, in addition to reviewing the laws that directly affect linking depositories, it will be necessary to review the laws concerning the holding and the transfer of assets (i.e. property law). The existence of a basic reference document covering these potentially difficult areas would provide a useful basis for determining whether a country's depository can link and whether it would be beneficial to do so. It would also encourage those countries whose laws and regulations discourage cross-border investment to amend them.

e. Foreign Exchange Regulations

Foreign exchange regulations can operate in two ways. They can prevent domestic investors from having access to foreign currencies and so prevent them from investing in overseas markets. They may also make it difficult for overseas investors to access the local market and/or to freely repatriate their profits.

Hong Kong, Indonesia, Republic of Korea, and Singapore have no exchange controls as far as bond investments and trading are concerned. The Philippines and Thailand have also liberalized exchange controls for bond market investments. However, Thai investors, until recently, were not permitted to invest in fixed-income instruments abroad without prior approval by the authorities. The PRC and Malaysia have exchange controls on outbound portfolio investments.

In order for a regional bond market to function efficiently, issuers and investors in each country should be treated equally in terms of both inward and outward investment. This may be hard to achieve in the short run given the different stages of economic development of each country. As an interim measure, the countries could consider allowing institutional investors to invest across borders in Asian bonds within certain limits that can then be reviewed based on experience.

Technical

In general, the debt settlement systems in the region have not developed STP capability. This clearly limits the efficiency with which a link can work. The need to re-key data leads to extra expense, extra opportunity for error, and probably increased timing problems as time must be allowed for re-keying and re-validation. It may therefore be helpful to undertake an exercise to review the options for promoting STP.

In addition, each market has its own communication arrangements, often using a proprietary network. This may make it difficult for remote users (market participants and/or other CSDs) to access overseas markets. It will also clearly add to the cost and difficulty of links if different communication protocols are used in each market. Markets should therefore review their access protocols and, if possible, enable remote access in accordance with an internationally accepted standard [e.g., the standards set by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) or Financial Information Exchange]

Market Practice

a. General

Each market within and outside the region has developed its own processes, procedures, etc. However, these differences create difficulties for market practitioners who wish to trade directly (or through linked CSDs) into overseas markets. It may involve developing different computer systems. This will have a direct cost and an opportunity cost as information technology (IT) budgets are usually limited, and it will be difficult to argue spending them for cross-border bond settlements while the volumes are low. In addition, it requires staff who are trained in the practices of each market. Once again this is difficult when volumes are low. Although copies of rules and procedures can clearly be made available, the risk of error is always greater when staffs are operating outside of their normal daily routines.

The significant areas where practices differ from market to market are:

(i) settlement dates vary from national market to national market but also between corporate and government bonds;

(ii) the types and formats of instructions that participants can give to the CSDs as CSDs generally establish their own record formats and do not use any internationally recognised standard such as SWIFT or Financial Information Exchange;

(iii) cut-off times for different types of instructions;

(iv) DvP methodology because in most countries government bonds are settled through RTGS whereas corporate bonds are settled in commercial bank money that requires an overseas market participant to make and fund multiple payment mechanisms;

(v) access for custodians to the settlement methodology and facilities available for institutions and custodians (i.e. for the overseas investors who will generally not be recognized as brokers in the domestic market).

International Standards

In the late 1980's, the Group of 30 (G30) was formed to make recommendations for improving cross-border settlements; however in its 1989 report it noted that improvements in cross-border settlements were unlikely to be made until procedures in domestic markets were standardized. Although, 15 years later there are still variations among markets, considerable progress has been made in harmonizing and standardizing procedures across Europe and the US. In the ASEAN+3 region, considerable work still needs to be undertaken to achieve full compliance with these standards.

E. Existing Worldwide Links

Summary

This section reviews the ICSDs linkages with national CSD systems worldwide and the links between national CSDs in Europe. Many of the ASEAN+3 national settlement systems are linked with the ICSDs. This is more to enable international market participants to trade and settle local government bonds than to facilitate local market participants trading and settling international bonds. However, there are currently only very few links within the region and those that do exist are infrequently used.

Existing Links in ASEAN+3 Markets

Table 10 shows (by an * in the box connecting the two markets) the links that exist between the markets in ASEAN+3 covered by this report.

Table 10: Existing Links

	People's Republic of China	Hong Kong,China	Indonesia	Japan	Malaysia	Philippines	Singapore	Republic of Korea	Thailand
People's Republic of China		*					*		
Hong Kong, China	*							*	
Indonesia									
Japan							*		
Malaysia									
Philippines									
Singapore	*			*					
Republic of Korea		*							
Thailand									

The PRC has one-way links with Hong Kong's CMU. PT. Kustodian Sentral Efek Indonesia indicated in its 2003 annual report that they stand ready to promote international links. The CMU in Hong Kong has been active in promoting cross-border links within Asia and the Pacific. Although the cross-border traffic is not high, the Hong Kong authorities stress that settlement risks will be reduced, and that the base of investors and domestic bond markets will expand by not only maintaining an infrastructure to smoothly conduct cross-border bond holding and settlement in Hong Kong and overseas, but by also introducing DvP settlements into cross-border bond trading. Even if there is currently little demand, there is nonetheless a positive attitude and a decisive policy toward preparing for the future. Table 11 gives details of the markets in the region that have links with the CMU.

CMU also has a link with Euroclear and Clearstream. This enables the Euroclear and Clearstream participants to hold and settle Hong Kong securities in the relevant ICSD. CMU participants cannot hold securities settled in the ICSDs through this link.

Singapore has a number of international links but these largely focus on the equity trading and derivatives markets and are therefore not strictly relevant to this paper. Since December 2001, the Singapore Stock Exchange (SGX) and the Australian Stock Exchange have operated a co-trading system by which selected securities are traded and electronically cleared. According to SGX, investors in Australia and Singapore may trade stocks in local currencies through stockbrokers during the hours that each market is open. From the establishment of the link up until October 2002, the average daily value of transactions executed through was around S$ 900,000. SGX has also formed a joint venture with the American Stock Exchange to promote the listing and trading of exchange traded funds in Asia and the Pacific.

In June 2004, SGX and Bursa Malaysia discussed a cross-trading facility for securities. The linkage will enable the trading of securities listed on SGX by investors in Malaysia and vice versa. It will also provide brokers access to market and trading information and allow them to transmit orders through their local trading terminals directly into the electronic trading systems of the other exchange. The trading link is expected to be operational by the end of 2005.

With regard to its derivatives market, SGX has links with Bloomberg that allow users of Bloomberg desktop terminals access to the SGX derivatives markets. SGX has a mutual offset arrangement with the Chicago Mercantile Exchange that provides round the clock trading of eurodollar and euroyen futures and options. SGX and the Tokyo Commodity Exchange have co-operated on the launch of Middle Eastern crude oil futures on SGX. The central depository linked with SGX has links with the Japan Securities Clearing Corporation and the Shenzhen Securities Registrars Company. (It has the same type of link with DTCC in the US.) These linked depositories hold Japanese, Chinese and American equity securities on behalf of

Table 11: Markets that Have Links with the Central Moneymarket Unit in Hong Kong, China

Country	Details of Linkage
Australia	In December 1997, the Hong Kong Monetary Authority (HKMA) became a member of the two bond settlement organizations in Australia. The Reserve Bank Information and Transfer system settles government bonds and Austraclear settles private debt instruments. This linkage enables participants in Central Moneymarket Unit (CMU) to settle Australian government and private sector debt instruments on a delivery versus payment (DvP) basis as the reserve bank acts as the payment agent. According to HKMA, this linkage was one way because there were few needs from Australia to Hong Kong, China (Hong Kong) even though there are immigrants from Hong Kong to Australia, and even though there is portfolio investment from Hong Kong.
New Zealand	In April 1998, CMU established a bilateral linkage with New Zealand. This enables participants in both systems to clear and settle eligible securities in both systems. The Reserve Bank of New Zealand settles government and private sector debt.
Republic of Korea	In September 1999, CMU established a bilateral securities linkage with the Korean Securities Depository to enable CMU participants to clear government and private debt issues in Korea and for Korean participants to settle HK government and other eligible CMU issues.
People's Republic of China	**Fund settlements:** One-way clearing and settlement of Hong Kong-dollar-denominated checks presented in Guangdong Province to be paid by banks located in Hong Kong, was started in January 1998. Two-way bilateral linkage started in September 2002, based on an agreement between HKMA and the People's Bank of China's (PBC) Guangzhou Branch. Hong Kong-dollar-denominated checks presented in Hong Kong to be paid by banks located in Guangdong Province can now also be cleared and settled. A check settlement takes two business days to complete.HKMA also permits Chinese banks to access the Hong Kong dollar (HK$) real time gross settlement (RTGS) system in Hong Kong, using an indirect link via PBC (Shenzhen). In the future, the fund settlement services of the HK$ RTGS system will be actively promoted in the People's Republic of China (PRC) and the HK$ fund settlement links will be improved.Although not yet available, Hong Kong authorities are currently planning to link the United States dollar (US$) RTGS system and the PRC's fund settlement system which will help Hong Kong become a place to settle US$—denominated foreign exchange for the PRC.It is also anticipated that similar arrangements will be put in place for euro-denominated fund settlements.
	Securities Settlement: In January 2002, HKMA and the China Government Securities Depository Trust and Clearing Corporation (CDC) concluded a basic agreement that CMU will be linked with CDC's government securities book entry system. Although this is a one-way linkage where the PRC opens an account with the CMU, PRC financial institutions will be able to hold securities and settle them on a DvP basis via those accounts. The agreement between HKMA and CDC was signed in April 2004.In addition PRC financial institutions will be able to hold and settle international securities in Euroclear and Clearstream via the CMU link.

the depository (safe custody links) to facilitate the settlement of transactions in the Singapore market.

Existing Links in the European markets

a. Equity markets

In Europe, the equity markets first developed extensive links with each other and have subsequently built on them to amalgamate and form multi-national settlement systems. It seems likely that the other European markets will, at some point, join one of the large groups described below, and that the consolidation of clearing houses and depositories will follow the consolidation of the markets. The European experience is discussed in more detail in Chapter IV.

Euroclear and Crest

In September 2000, the Belgian, Dutch and French exchanges merged to form Euronext. Through these three exchanges, Euronext manages both regulated and unregulated markets comprising a cash market for financial instruments, a derivatives market, and a commodity market. The integrated Euronext market caters for small to medium-sized companies, blue chips and new economy companies. Trading will be conducted on a single platform in conformity with unified rules.

When Euronext was formed, there were four settlement systems/depositories associated with it. Euroclear was essentially the hub, and in addition to its role as an ICSD, it settled all cross-border transactions among the three markets. Euroclear France (ex Sicovam), Necigef (Holland) and Euroclear Bank (ex CIK–Belgium) were the original national depositories, and they continued to settle local market transactions. The original three exchanges were later joined by the Lisbon Exchange and subsequently Euroclear acquired Crest, the UK settlement system and the group acquired London International Financial Futures Exchange (LIFFE) (the London derivatives market).

Clearnet is the central counterparty performing clearing services for all transactions executed on Euronext. Clearnet is a credit institution under French law and was wholly owned by Euronext. In December 2003 a merger was completed between the London clearing house (LCH) and Clearnet. The new organization is known as LCH-Clearnet.

Clearstream

The German market has adopted a different model. Cedel (the ICSD) merged with Deutsche Borse to become Clearstream. Through its wholly owned subsidiary (CBF the national central securities depository) settles all trades on the German market. It has alliances with other markets in respect of the derivatives business (Eurex) but has not amalgamated with other European exchanges.

Scandinavia

In addition to the two large markets discussed above, the Nordic countries have developed close ties. The NOREX Alliance comprises exchanges based in Denmark, Estonia, Finland, Iceland, Latvia, Norway, and Sweden. They have developed harmonized trading rules and membership requirements. All the markets are using the SAXESS trading system developed by OM Technology. Subsequent to the formation of the NOREX Alliance, some members amalgamated to form the OMX. This group now comprises Talinn, Estonia; Helsinki, Finland; Riga, Latvia; Vilnius, Lithuania; and Stockholm, Sweden.

b. Debt markets

In Europe, corporate debt is often listed and traded on the stock exchange. However, the volume of trading in that debt is usually quite small. Generally, corporate debt, whether it is bought by institutional or retail investors, is held to maturity. Table 12 shows the split between equity, government securities or gilt(s), and fixed interest (corporate debt) trading volumes and values on the LSE for the year 2003.

It is not possible to directly compare the trading figures produced by the LSE (see Table 12) with settlement figures produced by Crest. However, the total value of LSE trading for December 2003 was Pound Sterling (£) 314,503.4 million, the total value of securities settled by Crest for that month was £15,642,732, and the value of cash moved for that month was £10,006,689. As some international trades are settled outside Crest and some equity trades will be netted against the central counterparty, this differential represents a minimum level of gilt and fixed interest trading outside the market.

Table 12: Summary of Trading on the London Stock Exchange for the Year 2003

	UK		International	
	Value £ million	No. of trades million	Value £ million	No. of trades
Equities	1,876, 921.9	46,160,508	1,759,119.9	9,949,410
Gilts	2,552,955.9	592,018	n.a.	n.a.
Fixed Interest	24,290.9	154,286	71,403.9	136,881
Total	5.454,168.6	46,906,812	1,830,523.9	10,086,291
Daily averages – equities	7418.7	182,453	6,953	39,326

n.a. = not available
Source: http:// www.londonstockexchange.com

In many markets (e.g. France), government bonds may also be traded on the national exchange. However, the volume of exchange trading is minimal compared with the OTC (inter-bank market). Transactions in government bonds are usually (although not always) settled through a central bank system that is different from the stock exchange settlement system. In general, these systems do not have direct links with other systems (in Europe or internationally) and rely on the ICSDs to perform the role of intermediary for cross-border trades.

This would seem to be the general case because bond trading is normally undertaken by big international banks and they already have treasury operations in their major countries of operation (and so are direct members of the local government bond settlement system) and are direct members of either Euroclear or Clearstream or both.

The major linkage in terms of bond settlement, for international and national bonds traded internationally is the “bridge” between Euroclear and Clearstream. However, Table 4 shows the linkages within Europe that may be used to settle bonds.

Existing Global Links

a. ICSDs

The ICSD's have many international links, some direct and some indirect. Clearstream only has two direct links, i.e., those with Keler in Hungary and with Crest in the UK for government securities. Euroclear has more direct links but none in Asia. Table 5 sets out the links to Euroclear for the settlement of domestic debt (i.e., the domestic debt of the markets shown can be settled in the local market) between Euroclear participants and between participants in the local clearing house and between local market participants and Euroclear participants.

Table 13 gives details of Clearstream's international links. In almost all cases, the payment agent is different from the depository agent. Clearstream also has links with the PRC, but only for B[11] shares, and with Turkey, but only for equities.

A two-way bilateral linkage between Hong Kong and Euroclear started in November 2002, and in January 2003, a two-way linkage between Hong Kong and Clearstream also started. According to the HKMA, in the 3 months after beginning the two-way linkage between CMU and Euroclear (to February 2003), peak settlement each day averaged US$200 million. Although the two-way link with Clearstream started later, the peak settlement amount passing through that link per day in January and February 2003 was US$200 million, an increase over the US$1 million level just after it started.

b. The Depository Trust and Clearing Company

DTCC in the US operates the Fixed Income Clearing Corporation which has two divisions: Government Securities and Mortgage-Backed Securities. It also operates the Emerging Markets Clearing Corporation which enables DTCC participants to compare and settle Brady bonds and dollar-denominated emerging market sovereign debt, quasi-sovereign issues, and corporate debt. However, these are issues which are offered by emerging market governments and corporations into the American market and thus the instruments are issued in US$.

[11] Securities traded on the Shanghai and Shenzhen Stock Exchanges are categorised as A and B. "A" shares may only be held and traded by domestic investors. "B" shares are traded in foreign currencies (HKD or US$) and may only be held by overseas investors or domestic investors with access to foreign currencies.

Table 13: Clearstream Links for Debt Securities

Region	Custodian	Notes
Asia Pacific		
Australia	ANZ Custodian Services	
Hong Kong, China	Citibank N.A.	Foreign currency debt instruments in the central monetary unit may only be settled on a free of payment (FOP) basis.
Indonesia	Citibank N.A. Jakarta	Corporate bonds, commercial paper and certificates of deposit.
Japan	HSBC Tokyo	Foreign bonds (Daimyo, Samurai and Shogun. Global bonds (¥ denominated) may be settled on an FOP basis with Depository Trust and Clearing Corporation (DTCC) participants.
Malaysia	HSBC Bank (Malaysia) Berhad	
New Zealand	ANZ Banking Group (New Zealand)	Limited, Wellington
Singapore	OCBC Bank	Corporate bonds and loans
Republic of Korea	HSBC Ltd	Securities are not eligible for settlement within Clearstream or across the bridge to Euroclear.
Thailand	HSBC Ltd	
Americas		
Argentina	Citibank N.A.	
Canada	Bank of Nova Scotia	
Mexico	Banco Nacional de Mexico, S.A.	
United States	Citibank N.A.	
Uruguay	BankBoston N.A.	
Europe		
Austria	Erste Bank de Oesterreichischen Sparkassen	
Belgium	ING Belgium	
Czech Republic	Citibank A.S.	
Denmark	Danske Bank Copenhagen	
Estonia	Eesti Uhispank, Tallinn	
Finland	Nordea Custody Services	
France	BNP Paribas Securities Services, Paris	

Table 13: Clearstream Links for Debt Securities

Region	Custodian	Notes
Germany	Clearstream Banking, Frankfurt	
Greece	Citibank International Plc, Athens	
Hungary	Keler Ltd	Keler is the Hungarian National Depository.
Ireland	Citibank N.A. London	
Italy	Banca Intesa	
Luxembourg	There are 18 different custodians.	Clearstream is the major clearing system for the Luxembourg Stock Exchange
Netherlands	ABN Amro Bank N.V.	For short- and medium-term notes, T bills, commercial paper and certificates of deposit.
	KAS Bank NV. Amsterdam	For bonds
Norway	Den Norske Bank, Oslo	
Poland	Bank Handlowy W Warszawie S.A., Warsaw	
Portugal	Banco Santander de Negociou Portugal	
Slovak Republic	Ceskoslovenska Obchodni	
Spain	Banca Bilbao, Vizcaya Argentaria	
Sweden	Skandinaviska Enskilda Banken, Stockholm	
Switzerland	UBS A.G.	
United Kingdom	CrestCo Ltd	For UK government securities. These may be settled across the bridge to Euroclear or may be settled with the Euroclear nominee in Crest.
	Citibank N.A., London	Corporate bonds.
Other		
Iceland	Danske Bank, Copenhagen	
South Africa	Standard Corporate and Merchant Bank	

Source: Clearstream Domestic Links Guide

DTCC has links with 13 overseas depositories, of which three are in Asia. (See Table 14.)

Table 14: The Depository Trust and Clearing Company Links with Overseas Depositories

Region	Country	Organization
Asia	Hong Kong, China	Hong Kong Clearing
	Japan	Japan Securities Clearing Corporation
	Singapore	Central Depository (Pte) Ltd.
Americas	Argentina	Caja de Valores S.A.
	Brazil	Camara de Liquidacao e Custodia SA (Rio de Janeiro)
		Companhia Brasileira de Liquidacao e Custodia (San Paulo)
	Canada	The Canadian Depository for Securities Ltd.
	Peru	Caja de Valores y Liquidaciones S.A.
Europe		Euroclear
	Germany	Deutsche Borse Clearing
	Italy	Monte Titoli
	United Kingdom	CrestCo
Other	Israel	Tel Aviv Stock Exchange Clearing House

Apart from the link with Canada, all these are one-way links (overseas market has an account in DTCC) and only permit FOP deliveries. However, these links are designed to assist in the settlement of dual listed equity securities rather than the settlement of debt. In 2004, DTCC announced that it is discussing information sharing arrangements with the Taiwan Securities Central Depository.