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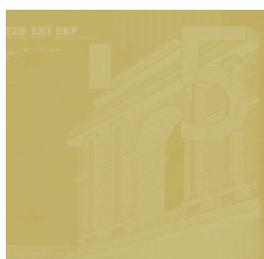
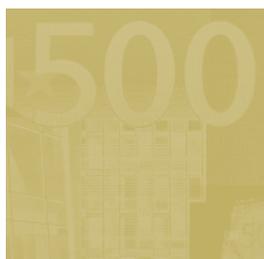
THE SECURITIES CUSTODY INDUSTRY

by Diana Chan, Florence Fontan,
Simonetta Rosati and Daniela Russo



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ABSTRACT

Custody is, in essence, a service consisting in holding (and normally administering) securities on behalf of third parties. In step with the growth of sophisticated financial markets, custody has evolved into a complex industry no longer characterised by physical safekeeping but by a range of information and banking services. Given the multi-tier structure of the industry, custody services are provided by a variety of intermediaries. This paper describes the development of the custody industry and the structure of the custody services market. It also discusses the risks involved in custody and the challenges the industry is facing, particularly in the European context.

Key words: custody industry, securities settlement, systemic risk, custodian banks, global custodians.

JEL classification: G15, G21, L22

INTRODUCTION

The securities market represents a large and growing part of financial markets. Custody as an industry originated with investors needing to keep securities certificates in a safe place, usually a bank with large vaults. The custody industry evolved, in step with the growth of sophisticated financial markets, into a complex industry no longer characterised by physical safekeeping but by a range of information and banking services.

The purpose of this paper is to inform investors, policy-makers, financial market participants and the interested public in general about the custody industry, and about the nature and evolution of the demand for and supply of custody services. There is currently a lively debate, particularly in Europe, among policy-makers, regulators and market participants about the role of market infrastructures and custodians, in the context of promoting competition and efficiency. This paper aims to contribute to the current debate without taking any policy position, but rather by shedding some light on similarities and differences among purchasers and providers of custody services, thus contributing to a better understanding of the functions performed by the various industry players. Most of the concepts and descriptions provided are valid for the custody industry in general; however, in the interests of the ongoing European debate, we discuss some subjects specific to this region more extensively.

The paper is divided into six chapters. Chapter 1 gives an overview of the origins and the evolution of the custody industry, tracing the development of central depositories, cross-border custody and the transformation of the industry from physical safekeeping to information and banking services. Chapter 2 discusses the supply of custody services. It describes the market size, market structure, trends, competition among service providers, some impediments to competition, and the providers' respective strategies. Chapter 3 looks

at the demand for custody services from different segments of investors and their intermediaries, and provide a description of their varied and specific service needs. Chapter 4 analyses the risks involved in custody. It highlights the operational, financial and legal risks incurred by both the providers and the users of custody services, and describes common techniques used to mitigate them. It also discusses systemic risks caused by the operational or financial failure of a custodian. Chapter 5 describes the future challenges for the industry. Finally, Chapter 6 summarises the key ideas presented in the paper and gives the main conclusions.

I THE DEVELOPMENT OF THE CUSTODY INDUSTRY

I.1 THE ORIGINS OF CUSTODY

Custody – in essence a service consisting in holding (and normally administering) securities on behalf of third parties – has its roots in physical safekeeping. In the days when securities existed only in paper form, investors needed a safe place to keep these certificates of value. That safe place could either be their own premises (which however then needed to be adequately protected) or those of a safekeeping service provider (banks with their vaults were a natural choice at that time).

Nowadays, custody is offered by a variety of institutions, primarily by brokers, commercial banks and investment banks.¹ These providers have developed specialised services that cater to different customer segments.

I.1.1 CUSTODIAN BANKS

As just explained, banks were the natural providers of physical safekeeping services as they would usually already have strong vaults for the holding of cash and other valuables taken for deposit.

Having the physical securities in safekeeping enabled the “custodian bank” to provide additional services related to *settlement and asset servicing*. Although custodian banks’ main function today is no longer safekeeping physical securities, the scope of their services in settlement and asset servicing remains relatively unchanged:

- When securities are bought or sold, the custodian takes care of the delivery and receipt of securities against the agreed amount of cash. This process, i.e. the exchange of securities against funds, is commonly called “settlement”.
- Holding securities in an investor’s portfolio attracts benefits, rights and obligations; the services provided by the custodian to ensure

the investor receives that to which he is entitled are commonly called “asset services”. These services usually fall into several broad categories: collection of dividends and interest; corporate actions such as rights issues, re-denominations or corporate reorganisations; payment and/or reclaim of tax; voting at shareholders’ meetings by proxy.

Much of the work done in asset servicing, therefore, involves a custodian acting as an information intermediary, communicating between issuers and securities holders. While the investing customer could have performed the related work itself, it is more convenient for it to entrust these activities to a specialist. Custodian banks have developed economies of scale to provide services to their customers at a price that is less than what the customer would spend, and probably faster and with less operational errors than if the customer were to do the same work itself. In each market, there are usually a number of local custodian banks that provide custody services, thus giving customers a choice of services and prices. When banks provide custody services in multiple markets through one service agreement with customers, they are called “global custodian” banks.

I.1.2 INTRODUCTION OF CENTRAL SECURITIES DEPOSITORIES

With high trading volumes, the movement of massive amounts of physical securities could cause delays and errors that would result in more delays. Severely delayed settlement of securities transactions could give rise to liquidity problems in the financial markets. Physical certificates could also increase the probability of fraud and forgeries.

Therefore, at the urging of national authorities and central banks, some markets set up central securities depositories (CSDs) many decades

¹ Investment banks are referred to as investment firms in EU legislation because not all of them may have a banking licence.

ago, to *immobilise* the securities certificates for the whole market, so that physical movements would be eliminated.² Advances in technology enabled other markets to *dematerialise*, whereby securities would only exist in electronic form. Whether by immobilisation or dematerialisation, securities are transferred from one holder to another in CSDs by “book entry settlement” between securities account holders, which are commonly called members or participants. These institutions operate as central providers for the entire market and are expected to treat all users equitably. Some markets set up CSDs only after having suffered through “paper crises”, or after adopting best practice recommendations by important international organisations such as the Group of Thirty.³

In markets where securities were legally required to be in paper form, enabling legislation needed to be passed to recognise ownership of securities in electronic form and change of legal title via book-entry settlement. As a general rule, one issue of a security is immobilised in one CSD only, as it is the most efficient arrangement.

In some markets, immobilisation was not mandatory and investors were given the option to hold physical certificates if they wished. In other markets *dematerialisation* was mandatory, so that the entire issue was held by the CSD in electronic form only. Markets that could not dematerialise because of legal requirements for securities to be in physical form might have opted to increase the efficiency of immobilisation by adopting global certificates, where one piece of paper represented an entire issue.

The establishment of CSDs generally took place at the urging of national authorities (Treasuries, central banks) with broad market support, by brokers and banks alike, as the merits of their efficiency were obvious. In some markets, the CSDs were set up by the exchange as a service to their broker members. In other markets, the CSDs were set up with investments by custodian banks, which shifted their focus from physical safekeeping to the provision of information on

customers’ transactions and securities holdings. Issuers and investors were usually not directly involved in the founding of these central service providers, as it was typically their intermediaries which had the vested interest in finding a solution to eliminate the inefficiencies of moving physical paper.

The first and the last: The first immobilisation of securities in central institutions to facilitate settlement without physical deliveries happened at the end of the 19th century in Germany; these institutions were called *Kassenvereine*. The CSD in France, the *Caisse centrale de dépôts et de virements des titres* (CCDVT), was established in 1942. The majority of the other European CSDs were established in the 1960s onwards. The establishment of CREST in 1996 in the UK finally completed the immobilisation of securities in all the European Union (EU) Member States prior to enlargement in 2004. Investors in some markets, however, still have the option to hold physical securities if they prefer.

In the US, the paperwork crisis in the securities industry that developed in the late 1960s served as a catalyst that generated deep concern within Congress and the Securities and Exchange Commission (SEC) and accelerated the immobilisation and book-entry transfer of securities by a central service provider. The Depository Trust Company (DTC) was established in 1973 and enabling legislation was passed in 1975, under the Securities Acts Amendments, which encouraged financial institutions to use central depositories and created a unified national market system.

- 2 The reason why a new entity was created to take up this function (instead of entrusting it to one of the custodian banks already in the market) was to avoid favouring any specific custodian bank (which would have happened if all securities were centralised at one market participant only). CSDs were initially set up as market utilities serving all market participants.
- 3 The Group of Thirty is a private, non-profit, international body composed of very senior representatives of the private and public sectors and academia. It aims, inter alia, to deepen understanding of international economic and financial issues. In January 2003 the Group released a report with twenty recommendations aimed at mapping the route to a more efficient global clearing and settlement infrastructure (see also www.group30.org).

In Europe, Denmark was the first country to dematerialise securities in 1981. Belgium was the most recent European country to announce plans for dematerialisation. The United States has ongoing initiatives towards dematerialisation of securities.

National consolidation: In a number of markets in the EU, CSDs initially specialised by type of security: equities were immobilised in a CSD owned or affiliated with a stock exchange, and government bonds in a CSD operated by the central bank. In some markets the separate CSDs for equities and government bonds eventually merged, so that a single CSD would serve the entire national market. Even though national laws do not always give a CSD monopoly status, the CSD becomes a de facto monopoly in its home market. There has been no new entrant to a national market in the EU to challenge an incumbent CSD. In the US, the regional stock exchanges' vertically integrated CSDs were gradually absorbed into DTC, a twenty-year process that began in 1976 and ended with the last integration taking place in 1997, while the Federal Reserve still acts as CSD for US government issues.

Diversity: Since the primary purpose of CSDs was to immobilise securities and to enable the transfer of title by book-entry, most of them never went much beyond this basic function. However, because of scale economies, it was recognised that services could be more efficiently delivered by a central service provider. One of the most common of these services was that of central registrar, where the CSD holds the central record of ownership and provides the root of title. Some CSDs developed a range of services such as income collection from issuers and distribution to securities holders, notification of corporate actions, and even tax reporting and collection services for national authorities. Others offered a centralised securities lending service, as the CSD was best placed to match demand with supply given that they have a view of the entire market in their books. Usually, CSDs provide asset and securities lending services with little or no

customisation by client, unlike those services offered by custodians. The legal and historical context of a CSD's creation also affected what it did and how it did it. For example, in national markets where dematerialisation was implemented on a mandatory basis, CSD activities were typically precisely defined and strongly regulated. In some markets, CSDs have been granted banking licences, primarily for the purpose of holding a cash clearing account at the central bank where payments among CSD members were effected with finality. These CSDs typically are not allowed by regulation to extend credit to members. In some cases, however, national banking law does not differentiate types of banking licences, so, in principle, CSDs that have a banking licence in these jurisdictions are not prohibited from extending credit.

Common features: The constitution and range of CSD services has become highly diverse, but they do share some key common features. They are central service providers established with a common objective, which is to provide the definitive record of ownership and subsequent transfer of title and – through immobilisation of securities – to facilitate the central settlement of securities without the movement of physical certificates. CSDs are also similar in the specific status they are usually accorded in national regulations and their specific control and supervision by public authorities, due to their central role in the smooth functioning of the securities market, the proper transfer of title, registration of ownership, and ensuring the existence of securities. The particular importance of CSDs, as the cornerstones of any efficient settlement system, has progressively led to their supervision by national central banks and securities market authorities, which pay considerable attention to the prevention of systemic risk. Supervisors generally require CSDs to manage operational risks with robust mitigation measures and to avoid taking credit risks. Furthermore, where dematerialisation was implemented on a broad scale or mandatory basis, CSD activities have been defined and strongly regulated in their role as central

safekeepers of dematerialised securities and operators of securities settlement systems. To ensure a harmonised approach on a global scale, the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) have defined 19 recommendations for securities clearing and settlement systems, including considerable attention to the objective of good governance.

1.1.3 INTERNATIONAL CSDs

A second type of CSD exists in the European Union: the so-called ICSDs Euroclear Bank and Clearstream Banking Luxembourg.⁴ They were originally set up, in 1968 and 1970 respectively, to immobilise Eurobonds and provide book-entry settlement as an efficient alternative to moving bonds physically. The “international” aspect incorporates several characteristics: the Eurobond market not being a national market, the many currencies in which Eurobonds are denominated, and member admission rules that do not restrict the country of domicile.⁵

The Eurobond market: Eurobonds were introduced to the financial markets in the early 1960s with the launch of internationally distributed and mainly US dollar-denominated bonds. “Originating as an offshore market, and not subject to the exclusive regulation of one government or group of governments, Euro-securities initially benefited from the exploitation of inefficiencies in individual domestic markets. The introduction, in 1963, of the Interest Equalisation Tax in the USA – which had the effect of increasing the cost of raising funds in the US capital market for the foreign borrowers – is usually singled out as the development that gave the initial impetus to the Euro-securities”.⁶ In the late 1970s, shorter-term instruments, Euro medium-term notes and Euro commercial paper, were added. It should be noted that the “Euro” part of this term refers to the type of security and not the euro (€) currency: it is commonly defined as a security issued outside the home market of the issuer and not subject to the issuer’s nor the country of issue’s domestic market regulations, domestic

bond market conventions and domestic settlement practices.

A “Euro” bond is a debt security that is:

- 1) underwritten and distributed by an international syndicate (whose members have registered offices in different states);
- 2) offered at issuance on a significant scale simultaneously to investors in more than one country (other than that of the issuer’s registered office).

This category of securities is sometimes described as “homeless and stateless”.

With the introduction of the euro and the internationalisation of the financial markets, the distinction between Eurobonds commonly deposited with ICSDs and domestic bonds commonly deposited with CSDs has blurred. It is no longer always possible to differentiate the instruments, which can both be underwritten and distributed on a broad scale. As a result, the choice of the ICSDs as place of deposit for the Eurobonds is often driven by the balance between domestic and international placement, as well as market habits. Euro securities are deposited into both ICSDs upon issue and distributed to the securities’ underwriters, first investors or their intermediaries by book-entry according to their membership in either ICSD. The Eurobond market is the only market in the EU where more than one CSD exists for the same issue of securities.⁷ Because of this, they needed to have “common depositories” arrangements whereby they outsourced the physical safekeeping of securities to a number of banks called Common or Specialised

4 Formerly Cedel SA.

5 The Swiss entity Sega Intersettle (SIS) also considers itself an international CSD. SIS is the result of the merger between the Swiss national securities depository Sega and a global custodian, Intersettle. The term ICSD and current market usage refer to the two long-established Eurobond CSDs only, and in this paper we also follow this convention.

6 P. Krijgsman (1994), page 5.

7 Outside the EU, India is another market where more than one CSD exists for the same issue of securities.

Depositories. Issuers' contractual relationships to ensure the integrity of their issues rested, however, with the ICSDs (so-called Current Global Note structure). Recently, the two ICSDs together with other market participants have developed a new arrangement, called the New Global Note, which can be used for issues of international debt securities in global bearer note form. Under the terms of the NGN, the legally relevant record of the indebtedness of the issuer will be maintained by the ICSDs. The ICSDs will enter into a direct contractual relationship with each issuer.⁸

A different business model: Although the ICSDs share the national CSDs' common characteristic of having been established as central service providers to immobilise Euromarket securities and effect transfer of title via book-entry, the ICSDs differ from national CSDs in that they were both founded as for-profit ventures by commercial banks, Morgan Guaranty Trust Company of New York in the case of Euroclear and a consortium of European banks in the case of Cedel. They have from the start combined CSD functions and banking services, by combining book-entry transfer of securities and book-entry payment for those securities via cash accounts held by the ICSD bank. During most of the ICSDs' history, the operator of the settlement system was separate from the commercial bank(s) providing cash financing, which were the original founders (respectively Morgan Guaranty Trust Company of New York and the consortium of European banks). This distinction was abolished when Cedel and Euroclear obtained banking licences, respectively in 1995 and 2001. As a result, cash used for settlement must first be deposited in (or credit extended by) the ICSD bank. ICSDs offer banking services, such as securities financing, that involve credit risk taking. An important source of revenues for ICSDs is from banking services. National CSDs, on the other hand, even when they are for-profit ventures, as a rule and with rare exception do not provide banking services to ensure they are not exposed to unnecessary credit risk. The ICSD banks are supervised by banking authorities, and most

national CSDs are overseen by the national central bank and other relevant authorities due to their systemic importance to the financial markets.

1.2 TRANSFORMATION OF THE CUSTODY INDUSTRY

1.2.1 CUSTODY IN THE ELECTRONIC AGE

The immobilisation or dematerialisation of physical securities in CSDs should, in theory, eliminate the need for any investor to use custodians or brokers to safekeep physical securities. Under immobilisation or dematerialisation, safekeeping is reduced to a reconciliation activity, whereby the custodian's task is to ensure that its holdings at the CSD are equivalent at all times to the amount of securities owned by its customers. Yet investors continue to use custodians, for several reasons:

Ineligibility: Some investors and market participants are not eligible to become a member of the CSD. Some CSDs only want members that are regulated, financially sound, have robust operational capabilities, and have the ability to continuously invest in technology that ensures straight-through processing. These membership criteria are primarily designed to minimise the probability of disruption to a CSD's smooth functioning.

Intermediation solution: Even when investors and market participants could be a direct member of the CSD, they might still decide to buy the services of a custodian with economies of scale and expertise in the procedures of the CSD, market practices and the management of securities holders' rights and entitlements. Intermediation enables a market participant to change fixed overheads into variable costs.

⁸ In order to be eligible as collateral for Eurosystem operations, an NGN will have to be held for safekeeping by one of the ICSDs, i.e. an entity that has been positively assessed by the Eurosystem. Further information about the NGN arrangement can be obtained from the websites of the ICSDs. Further information on the eligibility criteria can be found on the ECB's website.

The fact that market participants can choose between being a member of the CSD or using a custodian bank might give some observers the impression that the CSD and custodian banks are in competition. However, since a custodian can only provide services in the CSD's home market by holding customers' securities at the CSD, it cannot offer the service at a more competitive price than that which it has to pay the CSD. ECSDA, in a recent letter to the ECB,⁹ confirmed the different roles of custodians and CSDs: *"The functions of a custodian are altogether different from those of a CSD in terms of the risk profile involved (including the extension of credit), the need to cope with non-standardised activities with much lower levels of automation achievable and the need to engage in activities normally considered as higher value added than the commoditised services ordinarily provided by CSDs."*

A more economically logical view is that a market participant chooses between using its own back office or using a custodian bank that could do the same work at a lower cost. The back-office functions at stake include asset

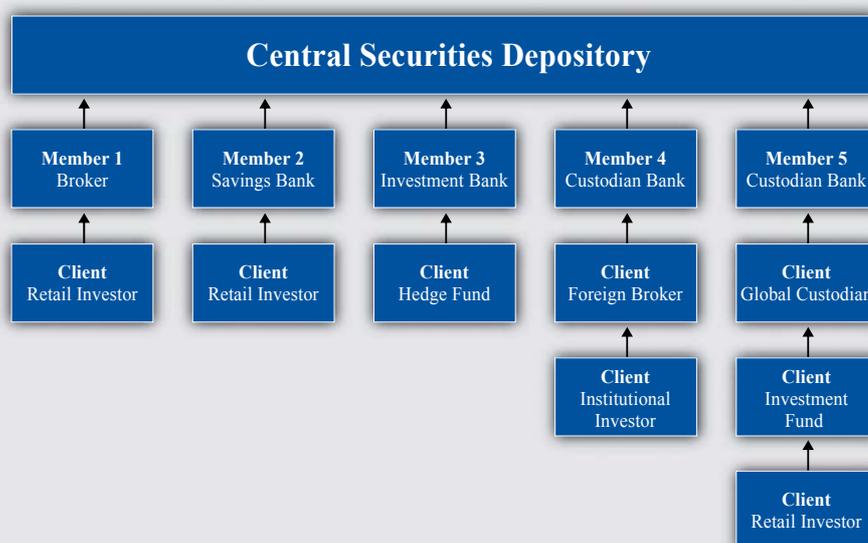
servicing, such as collection of income, dividends, tax reclaims, voting at shareholder meetings, etc. These functions can be either undertaken by a market participant's own back office, or performed by a custodian. The market participant's back office is therefore the actual competitor of the custodian bank.

A similar economic decision is taken by various types of financial market intermediaries, which results in custody being characterised by multi-tiered intermediation (see Figure 1).

Specialised and banking services: The custodian bank provides services that are most efficiently performed by the same entity that holds the securities for investors and other financial intermediaries. These services fall into two broad categories: specialised reporting for a specific customer segment, such as investment funds, and banking services, such as intraday liquidity provision and securities financing, which most CSDs do not provide because it involves credit exposure.

⁹ European Central Securities Depositories Association (ECSDA) letter to the ECB on TARGET2-Securities, February 2007.

Figure 1 Multi-tiered intermediation in custody services



Note: For illustrative purposes only. Not all intermediaries and end investors are shown.

Table 1 Services provided by custodian banks

Safekeeping ¹⁾	Ensuring that a record of title to the customer's securities is maintained on the books of a higher-tier entity, and that the number of securities owned by the customer as recorded in the custodian books can always be delivered to the customer's order.
Settlement ¹⁾	Transmitting customers' securities receipt and delivery orders to a higher-tier entity and effecting or monitoring the associated payments.
Asset servicing	Processing the rights and obligations associated with securities in safekeeping. This usually includes income and dividend collection, withholding tax processing and reclamation, proxy voting, corporate actions notifications, and statements of securities holdings.
Fund services	Delivering specialised services for investment portfolios (funds), usually involving investment accounting, net asset valuation, performance measurement, compliance monitoring, and regulatory record keeping. May also include fund holder registration, subscription and redemption services.
Banking	Taking deposits and providing services that involve credit exposure, usually intraday liquidity, lending money, and lending securities as principal or as agent with a guarantee to the lender. Collateral management is also usually provided. In markets with a central counterparty, some custodian banks provide an intermediary service to trading firms that do not wish to access the central counterparty directly. This service, commonly called General Clearing Member, involves assuming obligations of the customers vis-à-vis the market's central counterparty and hence is a credit risk-taking service.
Paying agent	Distributing, on behalf of the issuer, dividends, interest or principal redemptions to the securities holders or their financial intermediaries representatives.

1) Although the market terminology also attributes "settlement" and "safekeeping" activities to CSDs, it is important to outline that the functions performed by CSDs differ from those described above:

- Safekeeping by CSDs refers to the central deposit of an issue and the provision of the root of title, placing CSDs at the highest level of the holding chain, with a fiduciary responsibility to maintain at all times the balance of the issue and to effect the transfer of securities positions on the central register;
- Settlement by CSDs refers to the transfer of securities within the books of the central register. CSDs manage settlement systems and enact the regulations governing such systems. Settlement systems are agreements between participants with common rules and standardised arrangements for the execution of transfer orders and the provision of finality.

Table 1 lists six groups of services provided by custodian banks. It should be noted that some investment firms, though not constituted as banks, provide the same range of services to clients like retail investors and hedge funds.

1.2.2 CROSS-BORDER CUSTODY SERVICES

Most banks are custodians by nature: serving clients which invest on a domestic and cross-border scale, they have to provide asset safekeeping services and related banking services. They may provide custody services internally or have recourse to third-party providers for all or some of the markets.

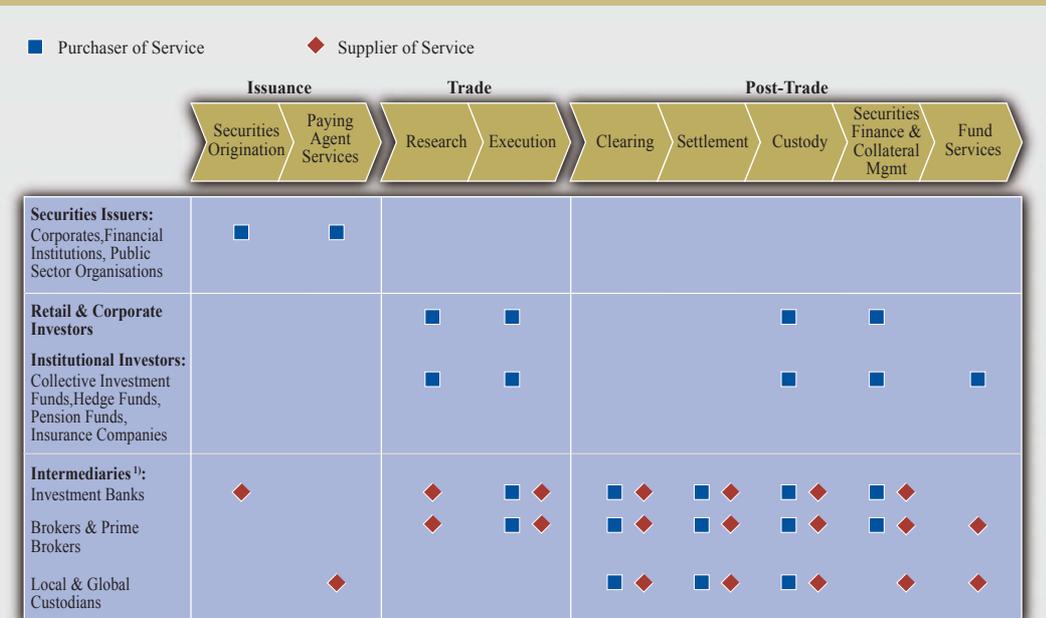
Such third-party providers are commonly called "custodian banks" and have structured their custody offering in order to provide it to external clients, on a competitive basis. The US was the first market where custodian banks developed, and their level is still unmatched in other regions, as a large portion of the market (both domestic and cross-border) has gradually been externalised to third-party suppliers.

As investors started purchasing securities issued in foreign markets, custodian banks and CSDs approached the new opportunities in several ways. The three categories listed below describe the ranges of markets covered by custodian banks which serve as a differentiating factor:

Single-market custodians: Some custodians decide to specialise in their home market to serve domestic customers and inflow investment from foreign customers. They compete with the multi-direct custodians from other markets which have set up branches in their jurisdictions. These custodians are often referred to as "local custodians", "agent banks" or "sub-custodians", a variety of terms which reflects the same business reality.

Multi-direct custodians: This group tries to capture additional cross-border business by establishing a presence in multiple markets and obtaining direct membership in each market's CSD. They compete with the established local custodians in that market for inflow as well as

Figure 2 Securities services value chain



1) An intermediary may purchase and supply multiple services in the value chain, sometimes via different subsidiaries. A supplier may purchase services from a higher-tier intermediary.

domestic business. Their customer base typically requires more in-depth local market expertise, proximity to local market infrastructures, and may also place a high importance in being able to select different providers in each market based on relationship, service and price.

Global custodians: This group of custodians offers a one-stop-shop service, usually covering about 100 markets, and opts to appoint intermediaries to access many markets' CSDs. They are able to capture cross-border custody business without incurring substantial set-up costs and ongoing fixed costs. Most global custodians began as large single-market custodians and expanded their market coverage to capture their domestic clients' investments abroad. The global custodian business model appeals mainly to institutional investors which need convenience and consolidated reporting on their diverse international portfolio. In some larger markets, some global custodians may establish a physical presence and become direct members of the CSDs. In most cases, however,

they appoint either a multi-direct or a single-market provider in the local market to be their "sub-custodian".

It is worth noting that outside the US, a significant share of the custody business is still performed by commercial banks, savings or cooperative banks to support their retail, brokerage and asset manager (intra-group) business.

Table 2 lists the major global custodians which have specialised in third-party services. It shows that this business tends to be concentrated on some key players due to the economies of scale.

Table 3 lists the geographical coverage of multi-direct custodians in the various regions. The countries have been taken into account only when the custodian is a direct member of the CSD in that country. The institutions listed may also be global custodians and their geographical coverage, including both direct and indirect membership for a given market, usually amounts to 70-100 countries.

Table 2 Total assets under custody with the major global custodians

(USD billions)					
	Provider	Total assets	Managed directly	Managed as sub-custodian	Reference date
1	JPMorgan	12,900	12,721	179	30 Sep. 2006
2	The Bank of New York ¹⁾	12,170	12,170		30 Sep. 2006
3	State Street ²⁾	11,900	11,900		31 Dec. 2006
4	Citigroup	9,142	1,492	7,650	1 June 2006
5	BNP Paribas	4,760	2,156	2,604	31 Dec. 2006
6	Mellon Group ³⁾	4,569	4,369	200	31 Dec. 2006
7	HSBC Securities Services	3,880			30 June 2006
8	UBS AG	3,377			30 Sep. 2006
9	Northern Trust	3,300	3,300		30 Sep. 2006
10	Société Générale	2,500	689	1,811	31 Mar. 2006
11	CACEIS Investor Services	2,316	1,887	429	31 Dec. 2006
12	RBC Dexia Investor Services	2,000	2,000		31 Dec. 2005
13	Investors Bank & Trust	1,950	1,673	277	30 June 2006
14	SIS SegalInterSettle AG	1,911	1,573	338	1 Jan. 2006
15	Brown Brothers Harriman	1,740	1,266	474	31 Dec. 2006
Total Top 15		78,415			
Total Next 35		9,901			
Aggregate: USD billion		88,316			

Source: ©globalcustody.net. Extract from source: www.globalcustody.net. The above extract depicts data from globalcustody.net Asset Tables as at 19 February 2007. Service providers can submit their latest figures for the tables in real-time, so please refer to globalcustody.net for the most up-to-date and comprehensive data.

1) On 4 December 2006, The Bank of New York and Mellon Group (6th on list) announced their agreement to merge.

2) On 5 February 2007, State Street announced its acquisition of Investor Financial Services Corporation, owner of Investors Bank & Trust (13th on list).

3) Assets held by Mellon Group's network include ABN AMRO Mellon, CIBC Mellon and Mellon Global Securities Services.

Annexes 1 to 5 provide details on the most active local custodian banks in various regions (EU27, other European countries, Asia Pacific, Africa and Middle East, and Americas). All of these banks serve their clients via a direct access to the local infrastructure CSD.¹⁰

Central securities depositories

In addition, CSDs have increasingly tried to broaden the scope of the instruments they process by covering not only the securities deposited in their books, but also foreign securities deposited with other CSDs, and by acting as intermediaries. CSDs may offer settlement, safekeeping and custody services for securities issued outside their own market and deposited with other CSDs. Most CSDs offer the service only for foreign securities with

a secondary listing on that CSD's national exchange. Other CSDs hold foreign securities for collateral management purposes in central bank monetary policy operations. In both cases, the activity in foreign securities remains limited and is driven by the fact that the CSD operates the securities settlement engine which processes the transactions executed on the exchange

¹⁰ Information for Table 3 and the annexes is based on Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey". The survey is based on nearly 10,000 responses worldwide. A custodian must secure a minimum number of responses from institutional clients in each market in order to be listed in the survey. Some custodians who specialise in certain market segments, such as retail consumers, do not participate in this survey. Only surveyed markets are included in this chart, although there are other markets (usually small) with stock exchanges and custodians.

Table 3 Geographical coverage of selected multi-direct custodian banks in various regions

Custodian	Africa and Middle East	Americas	Asia Pacific	EU27	Non-EU Europe	Grand total
Citigroup	2	9	16	18	3	48
HSBC	11	4	15	2	2	34
Deutsche Bank		2	11	7	2	22
UniCredit				12	5	17
Standard Chartered Bank			14			14
ING				8	2	10
BNP Paribas Securities Services				8	1	9
SEB Securities Services				6	1	7
RZB Group				4	3	7
Banco Santander		5		2		7
Barclays	7					7
Société Générale	3			2	1	6
Nordea				4	1	5
Stanbic Bank	5					5
BankBoston		4				4
Hansabank				3		3
Handelsbanken				2	1	3
Standard Bank	3					3
CSOB				2		2
Fortis Bank				2		2
KAS Bank				2		2
Millenium bcp				2		2
Bank of New York		1		1		2
Nova Ljubljanska Banka				1	1	2
ANZ			2			2
BBVA Bancomer		2				2
United Overseas Bank			2			2
Westpac			2			2
<i>Banks directly present in more than one country</i>	<i>31</i>	<i>27</i>	<i>62</i>	<i>88</i>	<i>23</i>	<i>231</i>
<i>Other banks directly present in more than two countries</i>	<i>16</i>	<i>15</i>	<i>14</i>	<i>28</i>	<i>13</i>	<i>86</i>
Total custodian banks	47	42	76	116	36	317

Source: Elaboration of data reported in the Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey".

or settles monetary policy operations. Such activity falls under local market procedures and does not expose the CSD to additional risk.

A different case exists where CSDs offer custody services for foreign securities in competition with custodians, providing members a single access point to multiple

markets. Typically, it is not easy for national CSDs to succeed in developing a cross-border business because market participants generally prefer to use specialised full-service providers such as global custodians. However, in Europe, there are three exceptions to this general statement, i.e. the two Eurobond market CSDs, and the Swiss national CSD, which have

Table 4 Links among euro area (1)CSDs eligible to deliver collateral to the Eurosystem in central bank credit operations

Country of issuance	Issuer CSD	Country of counterparty posting collateral and investor CSD				
		Austria	Belgium		Finland	France
		OeKB	Euroclear Bank	NBB SSS	APK	Euroclear France
Austria	OeKB		1			1
Belgium	Euroclear Bank	1		1		1
Finland	APK					1
France	Euroclear France	1	1	1	1	
Germany	Clearstream Banking Frankfurt	1			1	1
Italy	Monte Titoli	1	1			1
Luxembourg	Clearstream Banking S.A.	1	1	1		
Spain	Iberclear-SCLV					1
	Iberclear-CADE					1
Netherlands	Euroclear Nederland	1				1
Total		6	4	3	2	8

Source: D. Russo and S. Rosati (2007).

developed an extensive multiple-market service. The Eurobond CSDs can compete with custodian banks as intermediaries more effectively than national CSDs because they were founded by banks and their business model has always incorporated banking services. In addition, their role as market infrastructures for the Eurobond market means that they benefit from a unique client base and can cross-sell custody and banking services in other securities to the same internationally active client base. Their clients transact with each other, which allows the two ICSDs to base their business model on internalisation. In the case of the Swiss national CSD, its cross-border custody business is the result of a merger with a global custodian, Intersettle.

CSDs offer a custody service in securities outside their own markets in two ways: the first type of arrangement is by appointing a multi-direct or single-market custodian bank as sub-custodian. The second type of arrangement is by opening an account in other CSDs, which may or may not involve the same membership

rules that apply to market participants. Regardless of the legal and operational arrangements, the relationship between CSDs, whereby one holds the securities of the other, is commonly called a “link”. CSDs would commonly give each other special services conditions not available to regular members. It is not uncommon for CSDs in Europe to hold securities issued elsewhere on behalf of their members. There are various reasons for CSDs to start offering this service, acting as a settlement agent and custodian. The need could arise from foreign securities being listed on the stock exchange that results in the CSD being required to provide trading members with settlement and safekeeping services for those foreign securities. Some CSD members may want to hold foreign securities pledged to them as collateral. Generally, once an investor CSD has established an account with an issuer CSD, there are no restrictions on the issues of securities which its members could hold through the arrangement. Most of the national CSDs set up links as responses to specific member needs, although the two Eurobond ICSDs and SIS have

Country of counterparty posting collateral and investor CSD							Total
Germany	Italy	Luxembourg	Spain		Netherlands		
Clearstream Banking Frankfurt	Monte Titoli	Clearstream Banking S.A.	Iberclear-SCLV	Iberclear- CADE	Euroclear Nederland		
1	1	1				1	6
1	1	1				1	7
1							2
1	1	1	1	1	1	1	10
	1	1		1	1	1	7
1		1	1	1	1	1	8
1	1					1	6
	1					1	3
1	1					1	4
1	1		1	1			6
8	8	5	3	4	8		59

a strategy of global market coverage, similar to that of global custodians. Table 4 provides an overview of the eligible links existing among the (I)CSDs of nine countries belonging to the euro area.

2 THE SUPPLY OF CUSTODY SERVICES

2.1 MULTI-TIERED INTERMEDIATION

Custody, as previously mentioned, is in essence the service of holding (and normally administering) securities on behalf of others. The investment industry is characterised by intermediation, and custody reflects this tiered structure: securities are ultimately held in their national CSD (or the ICSDs in the case of Euromarket instruments), but there are usually a number of intermediaries between the national CSD and the investor. These intermediaries include brokers, investment firms, asset managers, global custodians, local custodian banks, and CSDs that offer cross-border custody services. Each layer of intermediary provides services that cater to its own customer base and that are associated with the assets held under its custody.

For example, an individual investor (1) could hold its entire portfolio of domestic and foreign securities investments with its retail bank or broker. The retail bank or the broker (2) buys the custody services from its affiliate (3), a major custodian bank in its home market. The custodian bank holds the home market securities in the national CSD, but appoints a global custodian (4) as the single service provider for all foreign securities. The global custodian employs a network of sub-custodians (usually about 100) that in turn hold the securities in the national CSDs of each foreign market. In Europe the chain would generally be more limited: the investor would hold securities with its retail bank, which holds securities in the home market CSD and uses a global custodian for foreign securities. It is also very common for the investor to use a retail bank as a global custodian; the retail bank would then have a sub-custodian network for handling foreign securities which in turn holds the securities in the respective national CSDs. Other types of investors, such as institutional investors and investment firms, likewise hold their securities via a mixture of intermediaries. A customer's securities that are held with its immediate

service provider are in turn held at upper-tier intermediaries, ending at the market infrastructures, the CSDs (where the securities are in the first place).¹¹ The total number of intermediaries involved between the investor and the CSD depends on the business models of both the customer and the service suppliers in each layer of intermediation.

2.2 MARKET SIZE

Although there are no official figures on market size, it can be roughly expressed in three ways:

- The value of securities held by custodians,
- Indirectly,¹² by the total fee revenues custodians receive from safekeeping and settlement of securities, and
- Indirectly, by the total fee revenues received from the full range of services provided by custodian banks.

Value of securities held: Due to the multi-tiered structure of custody, the size of the market can be calculated at different industry layers: for example, the same securities held through a custody chain would be counted at the global custodian level, at the sub-custodian level and at the level of the CSD where they were issued. To overcome data limitations, we can get an idea of market size by looking at the lower and upper layer of the industry. The most straightforward measure of the size of the custody market is thus the value of securities *issued*, making no assumptions about the portion of securities directly held by end-investors (including professional firms holding

11 As mentioned in Chapter 1, safekeeping by CSDs refers to the central deposit of an issue and the provision of the root of title, placing CSDs at the highest level of the holding chain, with a fiduciary responsibility to maintain at all times the balance of the issue and to execute the transfer of securities positions on the central register.

12 Total fee revenues provide an indirect measure of the business size, as it can be assumed that custodians holding more securities collect a larger (total) amount of fees than custodians holding a smaller amount/fewer securities.

proprietary positions) which do not require the services of a custodian. The value of equity securities issued can generally be determined by the market value (capitalisation) of companies listed on stock exchanges; for fixed income and money market securities, it can be determined by the nominal value of government and corporate issuance outstanding. The total value of securities issued can be considered the lower bound of the custody market and, globally, amounted to just over USD 128,000 billion at the end of 2006. Domestic and international fixed income securities accounted for USD 67,150 billion, or 52% of the total (of which USD 48,715 billion was domestic and USD 18,435 billion international); equities accounted for USD 50,636 billion or 39%, and money market instruments, USD 10,597 billion or a bit more than 8%, most of which was domestic (see Table 5).

Because of the multiplier effect of the custody industry's tiered intermediation structure, where securities are held (and therefore counted) at multiple intermediary layers, the value of securities held on behalf of others by all intermediaries would be larger than the value of issued securities. This number would constitute the upper bound of the custody market. This measure of market size is more difficult due to the unavailability of reliable statistics. Only a partial picture is possible: the value of securities held by the largest global custodians, a segment of intermediaries. As seen in the previous chapter, this amounted to about USD 88,316 billion through 2006 (see Table 2). Although this figure does not include securities held by other custody service providers and intermediaries such as sub-custodians, brokers, investment firms and asset managers, it nevertheless gives an indication of the magnitude of the amounts concerned.

Fees from safekeeping and settlement: Determining the amount spent on holding and settlement of securities by all investors and intermediaries is less straightforward. Assumptions need to be made regarding the level of fees and the multiplier effect of tiered

holdings. Furthermore, due to keen competition among custodians, fees are negotiated with individual clients. The level of safekeeping and settlement fees could vary widely due to the value and mix of services purchased by the client.

Fees from custody services: The definition of the custody market could be broadened to include the amounts spent on the full range of services, including not only safekeeping and settlement, but also asset servicing, fund administration and banking. Studies that attempt to quantify the market size for securities holding and the full range of associated services must disclose the underlying assumptions for ensuring a correct use of the figure. For example, if the objective is to measure the evolution of post-trade processing expenditure and the securities industry's efficiency over time, then the assessment of the market may consider including all costs paid by all participants for all services, as well as the operational costs of firms that have not outsourced operations to third-party providers. That market size figure may not be appropriate for other analytical purposes, e.g. when trying to establish the average cost of a cross-border transaction to an end-investor. For the latter, not only should double-counting of the same costs as they pass through multiple intermediaries and a few other costs be excluded, but a decision would have also to be made regarding how to account for providers that charge minimal or no safekeeping and settlement fees, but compensate with fees for other services. Another example where the market size quantification may require a different methodology is where a service provider wishes to determine its own market share. This provider may define market size to include only the revenues of its competitors in similar services, regarding as relevant only the revenues from one layer of intermediary and only the range of services that this provider offers.

Table 5 Key indicators of the size of securities markets

(end-2006)

10 largest domestic equity market capitalisations	Amounts in USD billions
1. NYSE Group	15,421
2. Tokyo Stock Exchange	4,614
3. Nasdaq Stock Market	3,865
4. London Stock Exchange	3,794
5. Euronext	3,708
6. Hong Kong Exchanges	1,715
7. TSX Group	1,701
8. Deutsche Börse	1,638
9. BME Spanish Exchanges	1,323
10. SWX Swiss Exchange	1,212
Total, top ten	38,991
All others	11,645
Total, all equity markets	50,636
International debt securities (amounts outstanding, by nationality of issuer, all countries)	18,435
of which:	
Developed countries	15,827
Domestic debt securities (amounts outstanding, all issuers ¹⁾)	48,715
of which:	
Governments	23,613
International money market instruments (amounts outstanding)	873
of which: commercial paper	635
Domestic money market instruments¹⁾	9,724
Commercial paper	2,575
Treasury bills	3,385
Other instruments	3,764
Total, all securities	128,383

Sources: World Federation of Exchanges, Annual Report 2006; BIS Quarterly Review, March 2007.

1) September 2006.

2.3 MARKET STRUCTURE

2.3.1 TRENDS AMONG CUSTODIANS

A technology-intensive industry: The custody industry today revolves around processing and dissemination of information on customers' securities holdings and transactions, on the one hand, and providing liquidity, financing, or yield-enhancing solutions on the other. Doing both functions well requires large investments in information technology.

Custodian banks must continuously adapt their technology because market practice, industry standards, legal requirements, fiscal processes

and infrastructures' procedures and technology are constantly changing. Once the technology investment has been made for a capability, processing additional volumes usually adds limited marginal costs. High fixed costs mean that custodian banks require economies of scale to be profitable. One means of gaining market share is by price competition with other custodians, which over time results in lower fees throughout the market as existing customers also benefit from the lower price levels when service contracts are renegotiated. As profit margins narrow, there is an increasing need to further invest in technology and automate more processes in order to remain profitable.

An additional driver for custodians' information technology investments is to remain competitive as customers' securities holdings and activities become increasingly diverse and complex. For example, institutional investors require not only broad geographical coverage but also services for increasingly sophisticated investment funds and stringent compliance measures. Institutional investors and brokerage firms alike require more external solutions provided by specialists to further reduce their own back-office costs.

Consolidation: During the last decade, not only have new entrants to the custody business been rare, but a number of single-market and global custodian banks have actually exited the business. This trend is expected to continue worldwide; custodian banks with insufficient scale economies will find it increasingly difficult to compete.

There are a number of strategies adopted by custodian banks to remain viable and competitive, depending on the nature of their customer base.

Single-market custodians are typically large local banks, and in developed countries there are usually at least three or four such custodians. They have a strong franchise among domestic institutional investors that tend to have most of their investments in the home market. Because

these clients also have outflow investments to other markets, large single-market custodians may develop a global custody operation to offer a comprehensive service. These custodian banks would typically also serve in-house affiliates in brokerage, investment banking and asset management. The activities from both internal and external customers would tend to sustain a single-market custodian's viability, in addition to business from major cross-border inflow customers. If these custodians' market position with external customers weakens, the custodians would need to decide whether to continue investing and competing for external clients to at least break even on the fixed costs, or to exit the custody business and find a service provider to support their affiliates' needs. A merger with another bank, however, may fundamentally change the business' economics.

The customer base of multi-direct custodians usually consists of, as explained previously, cross-border market participants which choose this service option because they need local market expertise and proximity to local market infrastructures. Although there are at least two or three well-established incumbents in each region (Europe, Middle East and Africa, Asia and the Americas), some single-region providers are diversifying into other regions to gain scale economies.

Global custodians compete in a concentrated market segment. In 2005 (see Table 2) the top 10 global custodians held 77% of the securities in this market segment, reflecting consolidation which started in the 1990s and is expected to continue. The recently announced merger between Bank of New York and Mellon is an illustration of the high level of concentration in the US market, which is dominated by four players. In 2005, half of the securities held at global custodians were with US providers, reflecting mostly the size of their home market but also their increasing market share in the rest of the world. The largest European global custodian is ranked in fifth place. Consolidation of the global custody industry in Europe,

encouraged by conditions created after the introduction of the euro and the single passport for financial services, and by competitive pressure from US providers, is expected to continue. The same is true of the trend of resorting to external providers, which is less entrenched than in the US market. Global custodians' strength, besides the ability to provide a single access point to as many as 100 markets or more, lies in fund administration: providing geographically diversified portfolios a host of information processing, reporting and operational services targeted at the specialised needs of pension funds, insurance companies, collective investment funds and more recently, hedge funds. In addition, they provide yield-enhancing services to their investor client base, such as securities lending and tri-party repo services. Competition has caused this segment of providers to capture new revenues via increasingly complex back-office outsourcing solutions for institutional investors, the most extensive of which involves the takeover of entire operations departments, including the personnel and technology.

2.3.2 COMPETITION FROM CSDs

Some major market infrastructures are listed companies and most CSDs are for-profit enterprises. For-profit entities are motivated to generate the financial returns expected by their shareholders and to which management compensation is usually tied.

Competition in banking services: CSDs that provide banking services such as liquidity provision and securities financing compete with custodian banks. These services improve settlement efficiency, but in principle they do not need to be provided centrally by the CSD. However, a CSD may have a competitive advantage as providers of such services compared with banks. In fact, due to its central position in serving the whole market in a given financial instrument, a CSD has a privileged overview of the whole demand and supply for securities lending (e.g. information on total market transaction volumes, or on the balances of all participants' accounts in a given security)

and, as it also controls the settlement process, it therefore has the possibility of seamlessly integrating its own securities financing service.

Competition in cross border access: CSDs that offer cross-border services for securities not deposited with the CSD, providing members with a single access point to multiple markets, compete with custodian banks. When a market participant chooses to access a foreign market via its home CSD or via a custodian bank, in both cases it is choosing an intermediary to access the foreign CSD (the choice depends on the needs and preferences of the different categories of customers. The demand for custody services is analysed in Chapter 3).

The diversity of CSD services has caused some observers to note that the roles of CSDs and custodians are blurring and conclude that they are increasingly in competition. Competition between CSDs and custodians has thus far only moved in one direction: CSDs with a banking licence are expanding into the commercial market of custodian banks and cross-selling custody to their membership base, which, because it comprises market infrastructures, includes all market participants with whom they have a long-term relationship. Custodians cannot compete with CSDs on their infrastructure business. Competition implies the possibility of substitution, but given the strong network effect that infrastructures enjoy, no custodian or other type of institution has yet challenged incumbent national CSDs by setting up a rival CSD for the same securities, even where allowed by law.

2.3.3 THE EUROPEAN ENVIRONMENT

Regulations: In Europe there is a lively debate about whether or not CSDs and custodians should be allowed to compete in the provision of banking services, and under what conditions. Those who believe CSDs should be free from the constraints of being market infrastructures when they compete with custodian banks are of the view that either CSDs should not be subject to regulations introduced specifically for market infrastructures, or that custodian banks should be subject to the same.

However, CSDs attract specific regulation for several reasons, in view of their unique notary function (which is a public service).

CSDs' primary role in the central immobilisation of securities, as previously mentioned, is often accompanied by a special status and specific requirements in national and international regulations. The requirements are usually to ensure and protect the interests of issuers and securities holders and the stability and integrity of market infrastructures. In markets where entire issues of securities are deposited in the CSD, it also has the responsibility to ensure that the sum of holdings equals the amount issued at all times – a function sometimes referred to as the “notary” function. CSDs in the European Union that hold collateral for the Eurosystem's credit operations are subject to specific requirements, which contain stringent conditions that CSDs extending credit to members (primarily the ICSDs) must meet.¹³

Custodian banks, on the other hand, regardless of their size, provide custody services subject to prudential regulations of banking supervisors whose primary focus is on banks' capital adequacy and their management of credit, interest rate, liquidity and operational risks.

In a forthcoming contribution, Russo et al. (2007) analyse and compare prudential and oversight requirements for securities settlement. The authors analyse the main relevant regulatory regimes (at the international and national EU levels) and conclude that proper implementation of banking regulation and supervision already covers the main credit risk concerns of overseers.

Another difference between custodian banks and CSDs regards relations with their business counterparties. Custodian banks provide commercial services and compete on service and price. They have discretion over the institutions they would do business with, the services they offer, pricing and contractual

¹³ European Central Bank User Standards for Securities Settlement Systems.

terms with each customer through individual negotiations. CSDs, reflecting their market infrastructure status, are expected to offer the same conditions regarding participation, fees and rules to all participants on a non-discriminatory basis.

In November 2006, CSDs signed a Code of Conduct validated by the European Commission. The objective of the Code of Conduct is to clarify the terms of competition, particularly by isolating the core services of market infrastructures. Price transparency, freedom of access, interoperability, unbundling and accounting separation are the key commitments requested by this code. It is too early to evaluate the code's effectiveness as it was only recently that the code was introduced and a monitoring process established. (The challenges for the custody industry possibly deriving from the implementation of the Code of Conduct are discussed in section 5.2).

CSD and ICSD consolidation

The most significant development that could shape the custody market is a business model where one ICSD becomes the single access point to multiple national CSDs under ownership of the same group. Aside from the immense scale economies the merged CSDs would generate, the single access point and common technology infrastructure would give the ICSD the benefit of a customer base that includes the members of the national CSDs in all markets in its group. Some services in which the ICSD competes with custodian banks, such as securities lending and borrowing and tri-party repo, benefit from network effects. Custodians potentially affected by this business model, mainly those with an important business in the markets controlled by the ICSD groups, advocate the separation of banking from infrastructure services because they are concerned that de facto impediments to competition would arise from the ICSD bank's ability to contact the members of all the CSDs in the group, the ICSD's privileged access to information not equally available to banking service competitors, and insufficient transparency in equivalence of

access conditions. Other custodians, mainly those not directly impacted, do not oppose combining an ICSD bank with national CSDs, provided the ICSD bank is subject to appropriate banking regulations and there are controls to prevent abuses.

The debate surrounding internalisation of settlement

Internalised settlement refers to the situation where a custodian bank has two customers transacting with each other and the custodian transfers the customers' securities and cash holdings on its books without having to forward the instructions to the national CSD and payment system.¹⁴ The conditions which allow internalised settlement to occur are so specific that its occurrence is usually incidental and marginal, even for the largest custodians, and is not a substitute for CSD settlement (further explanations are provided in Box 1).

In the EU, there has been a great deal of attention paid to internalised settlement, which may be considered disproportionate in light of its incidental nature and irrelevant size. Internalisation has been used as the common denominator that equates large custodians with CSDs to support imposing additional regulations on large custodians. This view has been put forth by those advocating a "functional" application of infrastructure regulations to level the playing-field between CSDs that offer banking services (e.g. the ICSDs) and large custodian banks.

Custodian banks counter that they are already adequately supervised as banks, whereas CSDs are market infrastructures and should be subject to different and more stringent regulations because of their systemic importance.

Custodians furthermore reject using internalised settlement as the common denominator to equate them with CSDs, and believe that much confusion has been sown regarding the nature and extent of internalised settlement.

¹⁴ The more commonly used term for this activity in the custody industry is *book-entry settlement*.

Internalised settlement as a business model is realistically feasible only for the ICSDs. The ICSDs' role as market infrastructures for the Euromarket means that their customer base includes all market participants active also in non-Eurobond fixed income markets that regularly trade with each other. A high level of

internalised settlement is a key element of the ICSDs' business model. Controlling the settlement flow makes it easier to provide banking services that benefit from network effects, resulting from a large number of counterparties using the same provider, such as securities financing and tri-party repo services.

Box 1

INTERNALISATION OF SETTLEMENT

Internalisation of trades is fundamentally different from internalisation of settlement. Internalisation is a term first used in the context of trade execution. When an investment firm receives buy and sell orders from customers and executes the trade on its books without forwarding them to a stock exchange, the trade is internalised.

Trade internalisation not only has the potential for investor abuse, but also poses competition to stock exchanges. Settlement internalisation does not give rise to potential for unfair pricing as custodians do not have influence over the price of the securities, nor could it be used by custodians to compete with CSDs. Using the term internalisation to describe two superficially similar processes with significantly different implications is not strictly correct and may be the source of much confusion that could have a significant impact on future policy.

Some of the key features of internalised settlement and the common misunderstandings are explained below.

Custodians cannot offer internalised settlement as a distinct service. In trading, the investment firm in some markets has the discretion to internalise orders or send them through to an organised market.¹ In settlement, custodian banks have no discretion over whether a specific transaction can be internalised or not, as its occurrence is coincidental. The client chooses its own trading counterparty and a custodian cannot settle the transaction in its books unless the counterparty happens also to be a client. Although a custodian may charge a lower fee for an internalised settlement (to pass savings in CSD fees on to its client), it is not a specific service that can be offered, let alone guaranteed. Equally importantly, the securities positions of the two customers that transact must be in the same account at the CSD, an arrangement that cannot be modified opportunistically. Nor could custodians net off transactions or otherwise maximise internalised settlement, sending only residual transactions to the CSD. Custodians must carry out customers' instructions exactly, with securities delivered to and received from the counterparties as instructed by a client.

Internalised trades result in internalised settlement only if the broker is also the custodian. It is only when the investment firm is also the custodian of the buyer and the seller, an arrangement common in the retail market, that an internalised trade results in an internalised settlement. An investment firm's institutional customers almost invariably select their own custodians and place orders with a variety of investment firms. Each client's custodian will settle with the investment firm, regardless of whether the investment firm internalises the order or not.

¹ As provided for in the European Union's Markets in Financial Instruments Directive ("MiFID").

3 THE DEMAND FOR CUSTODY SERVICES

3.1 INVESTORS

Retail investors: Retail investors typically use the same intermediaries that they use to purchase and sell securities as their custodians. Retail customers' needs tend to be more limited (compared with those of institutional investors) – confirmation of transactions, monthly statements, and asset servicing. In Europe, it is common for retail investors to keep their securities with their retail bank. Over the past 20 years, in most European markets, retail banks have acquired domestic brokerage businesses which enable them to offer retail clients a one-stop-shop service for trade execution and custody services as part of their general banking services. The large product range offered by retail banks enables them to attract clients and to raise exit barriers. For the broker, whether it is independent or part of a retail bank, offering a custody service to customers has multiple benefits: it eliminates the costs of transferring securities to and from a custodian bank, ties the customer to using its brokerage services, and, in cases where the broker is allowed to lend money to customers to buy securities (directly or via its retail bank parent), the securities portfolio can be used as collateral for the loans that generate additional income from the customer.

Private banking and wealth management customers: Custody is usually offered as one element in a comprehensive service which usually comprises investment advice, brokerage, custody, and tax and estate planning advice. The exception is “family offices” managing very significant assets that tend to use multiple, specialised providers.

Corporations: Companies with excess cash may invest it in liquid securities that yield more than a bank deposit. They usually hold the securities with the financial institution they purchased them from (bank or investment firm), but some do put them with a custodian bank. Their specific requirement is usually efficient

cash management that involves minimum opportunity costs.¹⁵

Investment firms: These firms, also known as investment banks, engage in a variety of activities in the securities market. Their trading strategy is generally very short term to medium term, and they turn around their securities portfolio very frequently. To ensure maximum flexibility, this client segment generally tries to be as close as possible to the market. Typically, they either participate directly in a CSD or use the services of a multi-direct custodian or single-market custodian. One of their specific essential needs is liquidity: the ability to conduct their securities activities in the most efficient way so as to minimise the need to borrow funds, and when they do borrow to have access to funds at the lowest cost.

Investment firms invest or trade in securities for their own account, and their liquidity needs are catered for by several services provided or intermediated by custodians: tri-party repo, collateral management, inventory financing, strategic securities borrowing and fails coverage. In addition, they are heavy users of intraday credit extended by their custodian banks, a liquidity service that involves payment of funds in the morning against receipt of securities in anticipation of funds arriving on the customers' account later in the day when securities are delivered against payment.

Institutional investors: This is a diverse population that custodians typically view as consisting of three distinct but similar sectors: collective investment funds, pension funds and insurance companies.

Institutional investors' specific focus is return. They need services that will increase the yield on their securities and cash portfolios. They also need information to track and benchmark their investment performance. A third, though no less important requirement, is compliance with regulations designed to protect investors

¹⁵ Some cash-rich corporates may use a custodian's tri-party repo services as a cash lender.

whose money is entrusted to them. Regulations vary by industry segment and jurisdiction, but commonly fall into several areas: the type of investments allowed, the markets in which they can invest, transparency of investment performance, proper segregation of and accountability for customers' assets, and due diligence in the selection of service providers such as brokers and custodians. There are usually many regulatory reporting requirements.

The key business activity of these investors is to maximise the return on investments within the confines of regulations in general and their investment mandates in particular. Given their business model, institutional investors are typically an asset-servicing-oriented group. They are hence very sensitive to services, such as collection of dividends and interest, corporate actions and tax processing, as well as to consolidated reporting and any type of information that analyses their investment decisions or those of their asset managers, such as performance measurement. Their management's attention is focused on investment and returns, and typically they prefer to purchase non-investment-related services, relying on specialist providers with economies of scale. Institutional investors generally turn to third-party providers, and often to their custodians (typically global custodians), for information processing that requires heavy investment in technology. In some markets and for some institutions, certain activities such as compliance monitoring are required by regulation to be delegated to a third party that might need to be a specialised bank or trustee. The size and reputation of the custodian is often a major factor in the selection process, and some criteria may even be mandated by regulations. Institutional investors may also choose custodians based on their ability to help enhance the return on their investment portfolio, via services in securities lending, tri-party repo and cash management.

Hedge funds: These are specialised institutional investors that purchase custody services

differently from the rest. Due to their business model of high leverage and complex trading strategies, hedge funds require a variety of services that they typically purchase from investment firms. The principal investment firm with which the hedge fund does business (the prime broker) will provide a custody service, usually at no charge. Investment firms introduce capital sources to hedge funds, advise and execute transactions that hedge the funds' exposures via a variety of techniques, and source securities for strategic borrowing that supports short sales. An investment firm may have significant credit exposure to a hedge fund that is collateralised by securities held by the fund. Being a hedge fund's custodian allows an investment firm to have a full view of the fund's activities, including deals concluded with other investment firms that may affect the fund's risk profile.

While using an investment firm as custodian was a common approach that accelerated a hedge fund's time to market, over time some hedge funds have changed providers to custodian banks. Given their business model, hedge funds have service needs similar to investment firms, although they are institutional investors.

Some hedge funds do not invest in securities but in other hedge funds. Some custodian banks have developed information processing and reporting requirements that fit these funds of funds' specific needs, which revolve around asset valuation and record keeping.

3.2 INTERMEDIARIES TO INVESTORS

The custody business as a multi-tiered intermediation industry has customers that may be investors in one market and intermediaries in another. Some customers of custodian banks are not securities investors but their intermediaries. There are also providers that compete in one market and have a supplier-customer relationship in another.

Brokers: When a broker's retail or institutional customers start investing in foreign markets, they generally use the brokers in their own markets, who speak the same language and are in the same time zone, as an intermediary in the purchase or sale transaction. The broker will relay the order to a broker in the destination market, who then executes the order on the destination stock exchange. The introducing broker needs to set up settlement arrangements in the destination market to receive and deliver securities between its customer's custodian and the executing broker. The introducing broker either becomes a direct but remote member of the CSD in the destination market or appoints a local custodian bank as its settlement agent. When the introducing broker also acts as custodian for its own customers for these foreign securities, it is more likely to use a local custodian bank in the destination market because of asset-servicing requirements that require local market expertise.

Brokers are often divisions within investment firms. An investment firm's custodian would need to provide services that cater to its customer's proprietary trading, brokerage and prime brokerage businesses, all with somewhat different service needs.

Global custodians: Single-market and multi-direct custodians act as local custodians (also named sub-custodians) for global custodians in markets where the latter lack a presence or a membership in the CSD. Global custodians use local custodians for settlement and asset servicing, but they provide fund administration, securities lending and tri-party repo services to their own customers.

Asset managers: Some institutional investors may appoint third-party asset managers to manage their investment portfolio. They may purchase the custody services for the investment portfolio from these asset managers, who in turn appoint a custodian, usually a bank. The asset manager may be able to provide its institutional investor customer with the information and reporting services that it needs.

However, over time, many asset managers decide to exit the custody business because the information technology investments needed for reporting are very substantial and large global custodians are able to provide a comprehensive service.

Asset managers, as intermediaries for institutional investors, have needs similar to those of their clients. They value asset servicing, consolidated reporting and fund administration. Some custodian banks have developed services to facilitate fund distribution for this client segment, for example reporting on statistics on the origin of subscription to enable the asset manager to calculate commissions by fund distributor.

Medium to small-sized banks: These intermediaries mainly cater to a specific segment of investment customers in their home market, and some find that it is not cost effective to hold exchange memberships or direct accounts at CSDs in foreign markets. They instead appoint a single broker/bank for trading and custody services in multiple markets and instruments. A single broker/bank can provide the smaller intermediaries with a range of ancillary banking services such as financing, hedging, foreign exchange trading and cross-border payments.

Issuers: Corporate issuers use a broad range of dedicated services provided by custodian banks:

- Corporate trust: handling the full range of corporate events, from paying agency and dividend distribution to centralising capital reorganisations such as rights issues, share exchange offers, warrant programs and buybacks. These services are provided for a diversified range of instruments including equities, Eurobonds, euro medium-term notes (EMTNs), euro commercial paper (ECP) and complex, asset-backed issues. They include fiscal and principal paying agent services, as well as listing agent and trustee services in some countries.

- Shareholder services for registered shares: shareholder registrar services for issues held in registered form. This includes tracking the shareholder base, monitoring share movements and providing customised reports.
- Annual General Meeting: handling regulatory filings and logistics related to shareholders' convocation, providing electronic voting facilities, distributing resolutions and voting ballots.
- Employee share and stock option plans: establishing and managing employee share and stock option plans, with beneficiaries often spread over multiple markets. This includes publishing user documentation, providing customised reporting solutions, administering beneficiaries' registers, managing the exercise of options and, in some cases, financing the purchase of the underlying shares.

4 RISKS INVOLVED IN CUSTODY

Providing custody services involves risks, but custodians' customers also take risks on their service providers. The risks for both parties fall into three general categories: operational, financial and legal, although the nature of such risks and the circumstances in which they arise differ between the provider and the user of custody services. In the wider context of financial market stability, there is also systemic risk that can be caused by operational or financial failure of a custodian that is a large financial institution, but such risks are not specific to the provision of custody services. Custody services provided by a bank fall under the regulation and supervision of banks. There are extensive regulatory controls governing bank custodians, and in many markets specific requirements are imposed on the custody arrangements of institutional investors such as collective investment schemes, which in turn impose compliance requirements on their custodian banks. Custody services provided by other institutions such as investment firms are not necessarily subject to similar regulations. As mentioned earlier, CSDs are subject to specific regulations, resulting from their central market position.

4.1 RISKS INCURRED BY CUSTODIANS

The risks incurred by custodians may arise in the context of their provision of custody services, associated with specific activities and specific consequences. However, these are the same kinds of risks that a bank normally faces, manages and mitigates for all banking services. Essentially, there are no additional categories of risks that are unique to a bank's custody service.

4.1.1 OPERATIONAL RISKS

Operational risk is the risk of financial loss resulting from inadequate or failed internal processes, people or systems, or from external events. It also includes the risk of failure to comply with applicable regulations, contractual agreements and a firm's own policies. It is not

possible to catalogue all types of operational risk exhaustively, but below are some common examples arising from custody services.

Corporate actions: A corporate action is an event initiated by the issuer of a security, giving rise to a right in favour of the investor. Regarding custody services, the biggest operational risks are associated with corporate actions, where the entire value of an action could be at stake due to operational errors or a lack of follow-up and tracking. Missing a deadline for the exercise of a right could lead to loss of the value of the entire entitlement. Incorrect client account set-up and maintenance could, for example, lead to crediting entries to the wrong accounts, or applying incorrect withholding tax on income, and could even increase the possibility of fraud. Inaccurate interpretation or communication of the terms of a corporate action to clients could lead to claims for losses. At its simplest, an error would result in a readjustment to holdings and a compensation for the loss, but consequences of an error could also be far more complex if the security is held by an investment fund and the error has caused a mis-pricing of the fund before it was discovered and remediated.

Settlement: Most market infrastructures settle by delivery versus payment ("DVP"), ensuring that an investor always has either securities or cash. Therefore, financial losses due to operational problems in settlement involve mainly the cost of funds for the value not settled on time, but not loss of the entire principal amount. However, inadequate follow-up, inadequate tracking and escalation of failed transactions by a custodian could lead to costly market-mandated buy-ins for unsettled transactions.

Fund accounting and administration: Fund accounting services are subject to operational errors in the valuation of an investment fund, leading to wrong pricing of units investors bought or redeemed. Trustee services are subject to operational errors that may fail to detect a breach of investment guidelines. A

custodian responsible for the error will be subject to claims from clients.

Risk mitigation techniques and standard practices: Operational risks can be mitigated via a system of appropriate and stringent controls. Custodians identify the operational risks involved, put controls in place, and continuously evaluate, test and monitor the adequacy of such controls. Under Basel II, custodian banks will be required to self-assess their operational risk exposure and have sufficient capital to cover potential losses.

Clients of custodians would be exposed to similar operational risks and, in most cases, regulatory constraints, if they were to perform the same activities themselves in-house. For many clients, purchasing back-office corporate actions and settlement services from custodians has the effect of using custodians' scale economies and expertise to make operational errors less likely.

4.1.2 CREDIT RISKS

Credit risk is the risk that the client will not be able to meet its financial obligation to the custodian, for example due to insolvency. Since the purchase, sale and holding of securities involve payments, custodian banks not only process payments but also extend credit and provide liquidity to clients.

A custodian bank may lend money to the client for the settlement of securities purchases, or may advance money to clients on the due date of interest or dividend payments when the money has not yet been received from the issuer of the securities. A custodian bank may also provide intraday liquidity to clients by making payment to a client's counterparties early in the day before the expected funds for credit to the client's account arrive later that day. If the funds do not arrive as expected, the funds are lent overnight to the client by the custodian bank.

Risk mitigation techniques and standard practices: Banks are regulated and supervised as credit institutions and as such have policies

and processes in place to control the credit quality of clients with whom they enter into custody arrangements or conduct other banking business. In addition, processes are generally in place to identify, for each client, the business activities for which the bank would extend credit, the extent of the exposure to each type of activity, whether credit is to be collateralised and the overall exposure limit to the client. Such limits would typically be controlled for all exposures, including intraday exposure. As the limit approaches, escalation procedures generally kick in to ensure appropriate risk management review and action.

4.1.3 LEGAL RISKS

Legal risk is commonly defined as the risk of a loss of a right resulting from laws and regulations being inapplicable or unenforceable or other legal circumstances, e.g. inadequate laws, inadequate legal documentation. Regarding custody, one of the most important and likely legal risks among rights in securities surrounds the contestability of rights over collateral.¹⁶ The nature of securities services is such that if a bank lends on a collateralised basis, the collateral is predominantly provided in the form of securities.

The risk of inapplicability of the preferred choice of laws governing the collateral agreement is particularly increased in the cross-border context, where the conflict between national laws is, in general, the major source of uncertainty. When a custodian needs to liquidate collateral used to secure a loan to a client, if the collateral was provided cross-border or the underlying securities are multinational, several national jurisdictions could be involved, affecting the custodian's right to liquidate the collateral, and possibly resulting at least in a delay or even complete unenforceability in the absence of adequate due diligence (but even in case of due diligence, delays may occur as a result of inadequate collateral laws).

¹⁶ For a comprehensive discussion of legal risk management in securities investment and collateral, and about the relevant legal issues concerning global custody in general, see Benjamin and Yates (2003).

In the European Union, these problems were addressed with the adoption of the Collateral Directive,¹⁷ which has introduced a common rule for the choice of law and mitigated against uncertainty deriving from conflicts between laws. However, outside the EU this problem is still relevant. Two main aspects need to be considered regarding conflicting jurisdictions:

- It is vital to determine the location of securities and collateral. This aspect defines in principle the applicable jurisdiction which governs issues such as the legal requirements to ensure the collateral arrangements are perfected and, following a default, how the collateral can be liquidated. Identifying the location is becoming all the more important as, following dematerialisation, securities and securities interests are mostly made by way of book-entries on securities accounts, making entries to securities accounts held by custodians and by central securities depositories proof of ownership.
- The identification of rules applicable to the client's insolvency is vital.

Due to such complex legal risks, a blind reliance on collateralisation of credit exposure may give a false impression of security unless robust legal risk management is in place and other risks associated with collateral (such as market risk and operational risk) are contained.

Risk mitigation techniques and standard practices: Much of the mitigation of legal risks depends on certainty on and within the applicable legal regime as well as the coherence between the custodian's rights and its obligations towards clients and central securities depositories. This is not within the direct control of the custodian. The best mitigation approach is robust credit risk management and monitoring, and eliminating exposure to financially unsound clients in the first place.

On the public policy level, legal risk can be mitigated by creating clear and binding rules to

deal with conflicting laws, or more efficiently through common legislation, making the enforceability of contracts more reliable. The question of achieving common international regulation is also being debated, and one needs to ensure that the level of legal certainty provided by current EU Directives is maintained in Europe.

As mentioned earlier, on a European scale, current and recent European legislative proposals have improved such insufficiencies. The most recent EU initiatives to harmonise rules in the clearing and settlement area are the Collateral Directive, the Settlement Finality Directive¹⁸ and the Winding-up of Credit Institutions Directive.¹⁹ Although national transposition may have given rise to some diverging interpretations, legal certainty has been improved by enforcing common rules across the EU based on the location of the account. A recent European Commission survey on the Settlement Finality Directive confirmed that it has operated since 1998 to the amplest satisfaction of EU Member States.

Further international efforts to harmonise this area are either in development, such as the draft Unidroit Convention, or have already been finalised in the image of the Hague Convention.²⁰ However, the former is in an early development stage and intends to address also the markets

17 Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements.

18 Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems.

19 European Parliament and Council Directive 2001/24/EC on the reorganisation and winding-up of credit institutions.

20 The Hague Securities Convention is an international treaty finalised in 2002 by the Hague Conference on Private International Law (www.hcch.net). It is intended to establish a rule that would apply across the major securities markets of the world to determine the law applicable to certain issues in respect of the holding, transfer and collateralisation of securities credited to a securities account held with an intermediary in an international context. According to the Convention, the law applicable to the issues covered by the Convention is the law in force in the State that the relevant intermediary and the account holder have expressly agreed as governing their account agreement. The US and Switzerland were the first countries to sign the Convention on 5 July 2006 and it is expected that soon more countries will follow.

outside the EU, which could further delay a consensus. The latter was completed in 2003 but has not yet been signed or ratified by any state, not least because of the perceived need to assess the impacts of these new international rules, which are based on the parties' autonomy in choosing the applicable law, and are in conflict with an EU harmonised regime based on the location of the account.²¹

4.2 RISKS INCURRED BY CUSTODY CLIENTS

Custodians' clients are exposed to operational, financial and legal risk from their service provider. In some jurisdictions, regulations require institutional investors such as pension funds to exercise due diligence when selecting custodians, so as not to subject fund holders and final beneficiaries to losses that could be caused by an operationally inadequate or financially unsound custodian.

Operational, financial and legal risks incurred by clients of custody services are incurred in other banking services as well. However, the following sections will deal with custody-specific risks.

4.2.1 OPERATIONAL RISKS

A custodian that has weak operational controls and continuity of business arrangements could make errors or incur delays in processing corporate actions, settlement and fund administration that cause financial loss to its clients. The custody agreement would normally provide for client compensation if the fault is the custodian's, but such provisions generally do not cover consequential damage, which could be a real and significant financial loss. Consequential damages include "opportunity costs", losses incurred due to missed hypothetical but likely business opportunities that are unsubstantiable.

Risk mitigation techniques and standard practices: Before appointing a custodian, an institution would normally evaluate its operational robustness through requests for information and, sometimes, on-site visits to

the operations centre. The quality of management and controls is usually a significant custodian selection criterion. The assurance of ongoing operational robustness is also essential. Some clients require that their custodians have third-party standardised control qualifications, which are enforced in addition to banking supervision.²²

4.2.2 FINANCIAL RISKS

Cash that is deposited by a client with a bank enters that bank's balance sheet and is subject to claims from creditors in case of the bank's failure. This is no different for custody clients who would have cash accounts with the custodian. The exception is when the custodian is not a bank; in some jurisdictions non-banking providers of custody services, such as investment firms, are required to segregate client money from their own. The client's money is thus protected from claims of third

21 The Convention and the EC Directives take a different approach to the law applicable for indirectly held securities. Community legislation is based on a "location of the account" formula. The Convention is based on the law expressed in the relevant account agreement. These two approaches are incompatible and, consequently, the Directives will have to be changed if the Convention is ratified. The Commission made a proposal to sign the Convention at the end of 2003, but Member States have so far been unable to decide on this proposal. On 23 June 2005, the Council asked the Commission to assess four legal issues, namely: (1) scope of application, (2) extent of third-party rights, (3) consequences for substantive and public law and (4) impact of the diversity of laws on settlement systems and prudential regimes. The Commission's legal assessment, issued in the form of a staff working paper, concluded that the first three issues would not pose major difficulties, but that the application of the Convention may affect the financial stability of securities settlement systems. Similarly, the European Parliament passed a resolution in December 2006 which expressed reservations on the agreement and is calling for a proper evaluation of its economic and legal effects. The European Parliament also restated its commitment to the existing Community legislation system. The Council has resumed the debate but remains divided on which approach to take. For more information, see http://ec.europa.eu/internal_market/financial-markets/hague/index_en.htm

22 One such qualification that is common, particularly among US-based clients, is the American Institute of Certified Public Accountants' Statement on Auditing Standards (SAS) No. 70 ("SAS 70"). A service organisation, after undergoing a SAS 70 audit, receives a Service Auditor's Report as evidence that its control objectives and activities, including information technology and related processes, have been independently audited. Critics of SAS 70 are of the view that that SAS 70 verifies the existence of controls but not the adequacy or quality of the controls.

parties in the event the non-bank custodian becomes insolvent.

Securities held by a custodian do not enter the custodian's balance sheet, and there are generally regulations in place to ensure that clients' securities are not treated as part of the custodian's own property in liquidation proceedings in case of the bank's failure. However, clients may encounter delays when trying to access their securities and transfer them to an alternative provider, which could cause liquidity problems or opportunity costs.

Risk mitigation techniques and standard practices: A client needs to evaluate the financial health of a custodian bank prior to its appointment and monitor it during the course of the service contract. All cash deposited with a bank represents a client's exposure to that bank.

Financial market participants and consumers rely on public authorities' oversight and supervision of banks to ensure that banks are prudently managed and remain solvent. Clients should resist moral hazard where the belief in a bank being "too big to fail" might lead them to have an imprudent tolerance of financially unsound banking practices.

4.2.3 LEGAL RISKS

The main legal risk for clients of custodian banks is the risk of loss of title to securities (including shortfalls) held in its account.²³ A custody agreement is one in which a client entrusts securities and the related servicing to a custodian. The main legal risk is therefore the ability of the client:

- 1) to ensure that its rights are protected from any unauthorised use by the custodian, as well as against third parties or bankruptcy of the custodian,
- 2) to use or enforce such rights. Most jurisdictions provide clients with proprietary rights to the securities (rights in rem), while other jurisdictions provide clients with a

claim on the custodian, exposing them to the risk of the custodian's failure.

Protection of the client is generally achieved through the combination of legislative provisions, custodian regulatory obligations, and contractual obligations. Topics of critical importance are:

- the protection of the investor in case of custodian (or upper-tier) bankruptcy,
- the protection of the bona fide acquirer,
- the avoidance by custodians of any (accounting or lack of cover) shortfall,
- the protection of owners against upper-tier attachments,
- prohibition on using the assets or acting without client instruction.

In the context of legal risks associated with the use of a custodian's services, it is important to distinguish the risk of enforceability of a contract with the custodian as explained above, and the risk of enforceability of title due to complexities in the legal system. Although this latter legal risk cannot be avoided by more careful selection of a custodian, it is further explained in the paragraphs below because such risks could be misinterpreted as custody risk, when they are actually risks arising from general cross-border securities holding.²⁴

As securities transactions and custody services are becoming increasingly international, the legal risks resulting from conflict of laws and inadequate substantive laws gain more importance. A chain of intermediaries in

²³ For a comprehensive review of the law of global custody, see Benjamin and Yates (2003).

²⁴ Legal risks related to loss of title to securities in a purely domestic context are generally low, as most national markets have legislation that recognises the legal rights of investors holding securities through intermediaries such as custodians. In this case, the market infrastructure, securities, custodian and customer are usually all in the same jurisdiction, and problems related to conflict of laws do not arise.

different jurisdictions could be involved (such as asset managers, global custodians and sub-custodians). Such tiering in a chain of international intermediaries, natural to cross-border custody, makes legal implications complex and thus involves additional risks to be managed, e.g. if there is a bankruptcy of an intermediary or a large client of one of the intermediaries in the chain.

Claims by creditors against an insolvent intermediary affecting customer's securities could cause repercussions up and down the chain of cross-border intermediaries. In a bankruptcy scenario, national legal regimes may indicate different solutions to the problem, which is complicated by diverging rules on which legal system applies to the questions which arise in non-EU international insolvencies. Discrepancies between the custodian's rights and its obligations towards clients and central securities depositories could be altered to the account holder's disadvantage, and result in problems enforcing the underlying contract or pure losses.

Risk mitigation techniques and standard practices: Complications arising from interaction of national laws in a cross-border context that could result in a loss of title to assets cannot generally be prevented by an individual client, although the latter can take basic precautions, such as contractual terms that require the custodian to have proper segregation of client assets and terms specifying the obligations under the law governing the bilateral contract between client and custodian.

As described above, much of the mitigation of legal risks depends on certainty in the determination and content of the applicable legal regime and is not within the direct control of the custodian or its client. Public policy-makers can help investors mitigate legal risk by creating clear and common rules on conflict of laws or, more efficiently, through common substantive law rules. This is already the case in Europe, where certainty is based on the

location of the account. The question of achieving common international regulation is also being debated.

4.2.4 RISKS ARISING IN INTERNALISED SETTLEMENT

According to custodians, internalised settlement is no more risky than settlement in a CSD. As a standard practice, custodians ensure that two customers that transact have sufficient securities and cash respectively before effecting the transfer, thereby ensuring that a customer is not exposed to the risk of loss of principal. Following this practice, therefore, ensures that internalised settlement is no more risky than settlement in a CSD regarding protection from principal risk. Regarding protection in the event of the insolvency of the custodian bank, a transaction settled in the CSD would be protected in the EU by the Settlement Finality Directive from being unwound. Although it would appear that settlement in the CSD in this scenario is protected from the risk that a liquidator applies for the transaction to be unwound, internalised settlement does not in fact change the exposure of each customer's cash deposits to its chosen custodian bank's insolvency. Unwinding a book-entry transaction would only have the effect of changing the customer who holds (and therefore loses) the cash from the seller to the buyer. Given that internalised settlement is rare, such an event would not have systemic consequences, and therefore a general protection against unwinding, like the one given to settlement in the books of a CSD, is not necessary.

4.3 SYSTEMIC RISK

The operational outage or financial failure of an institution could negatively impact the functioning of the financial system as a whole if the institution's failure affects the ability of other institutions to meet their obligations. Systemic risk is defined as when one institution's inability to meet its obligation makes other institutions unable to meet their obligations, resulting in significant liquidity and credit problems that threaten the stability of or

confidence in markets. Several scenarios could cause such an effect, which is commonly referred to as contagion, or a knock-on or domino effect. Systemic risk is not confined to the custody business area of a bank, but applies to all banking activities. Banks are not the only financial institutions that could give rise to systemic risks. Other financial institutions, such as investment firms, could likewise be systemically important. Securities and other wholesale market infrastructures are, by definition, systemically important.

4.3.1 OPERATIONAL FAILURE OF A CUSTODIAN

Large-scale technical failure in data processing or a physical impediment to employees being able to perform their normal functions could stop a bank from processing clients' instructions to make cash payments and receive or deliver securities. Regulation cannot completely remove operational failure or prevent disruptive events; preparedness for localised and widespread disruptions is the key to avoiding unmanaged strains on the financial system.

If a bank is unable to pay cash due to operational problems, not only at its securities business but also for all payments, its clients could experience liquidity problems. The inability of a custodian to effect deliveries and receipts of securities could likewise impact the liquidity of their clients' market counterparties, which expect to receive cash proceeds or securities that are needed for onward delivery to others in exchange for cash.

Risk mitigation techniques and standard practices: Institutional clients that prudently manage their credit and liquidity needs would normally have more than one banking and liquidity service provider, which would mitigate the negative impact of one provider's operational outage.

The systemic impact from an operational outage of a large, otherwise healthy institution would be minimised if market participants, the central bank and regulators intervened and took appropriate measures to inject liquidity

temporarily into the financial system. There is a recent example which illustrates the success of such measures, even in a major widespread operational disruption: the outage on September 11, 2001 of many brokers and one of the two major custodian banks for US government securities.

In this well-known case, all stakeholders involved took measures to inject liquidity in an appropriate and highly controlled environment to stabilise the situation. It proved that even a large-scale operational failure does not necessarily result in the failure of the financial system. The prime prerequisite for preventing systemic disruption is participants' trust in the financial soundness of their counterparties. The common support by the public authorities and all members of the financial community is essential to preserving liquidity.

Nevertheless, although these concerns are largely addressed by banking regulations, overseers have started to consider the operational relevance of key participants in the payment systems when considering financial market infrastructures' business continuity arrangements. For instance, subsequent to the events of September 11, US market authorities imposed regulatory requirements for robust business continuity arrangements but applied them proportionately, differentiating between infrastructures and large participants in the financial markets. Regulators focused particularly on large brokers responsible for a large trading activity on an organised market.²⁵ Nevertheless, regulators cannot simply mimic the US's approach and criteria in Europe

²⁵ The Interagency paper on Sound Practices to strengthen the resilience of the US financial system is available at <http://www.sec.gov/news/studies/34-47638.htm>. The paper defines the "firms that play significant roles in critical financial markets" as "those that participate (on behalf of themselves or their customers) with sufficient market share in one or more critical financial markets such that their failure to settle their own or their customers' material pending transactions by the end of the business day could present systemic risk". While recognising that there are different ways to gauge the significance of such firms in critical markets, as a guideline, the US agencies consider a firm significant in a particular critical market if it consistently clears and settles at least 5% of the value of transactions in that critical market.

because the market is not the same size and it is organised differently. It is also worth noting that European banking participants are already de facto largely subject to similar requirements under both the new MiFID and Capital Requirements Directives. In particular, Article 13 of the MiFID requires investment firms to take all reasonable steps to ensure continuity and regularity in the performance of their activities. For that purpose, they have to employ appropriate and proportionate resources, systems and procedures. As far as banks are concerned, Article 4 (22) of the Capital Requirements Directive recognises inadequate or failed internal processes as a source of operational risk. Furthermore, according to Annex V, No 9, 13: “Contingency and business continuity plans shall be in place (...)” (Russo et al., 2007). In Europe, when adopting the recent “Business continuity oversight expectations for systemically important payment systems (SIPS)”, the Eurosystem also explicitly acknowledged that the technical failure of critical participants in the system may induce systemic risk, and included a recommendation that “participants which are identified as critical by SIPS operators should also have a secondary processing site. This should be part of the technical requirement to access the system.”²⁶ These oversight expectations refer to payment systems, but in principle a similar recommendation could be adopted for the securities clearing and settlement systems (and their critical participants).

4.3.2 FINANCIAL FAILURE OF A CUSTODIAN

The deterioration in the financial condition of a bank, unlike an operational disruption, is usually not sudden. Prudential supervision by public authorities and minimum capital requirements serve to ensure that banks remain liquid and solvent. Usually, financial difficulties do not emerge without warning and an orderly arrangement for the liquidity needs of an ailing bank could be expected to be in place.

An inability to make payments for securities transactions due to a bank’s financial situation could, like operational problems that prevent

the processing of payments, cause liquidity problems among its clients.

However, if a custodian bank was not able to meet its payment obligations for the settlement of securities, it would imply that the bank would not be able to meet other payment obligations as well. The systemic impact of the overall failure of an institution therefore depends on its size and the total value of its payment obligations, not only payments related to its custody activities.

Risk mitigation techniques and standard practices: Banks’ financial health is extensively regulated and internal monitoring procedures make sure that institutions comply accurately with regulations so as to avoid any default. Banking supervisors closely monitor the financial soundness of credit institutions and take appropriate measures if a bank’s financial health displays symptoms of possible failure.²⁷

It has been suggested that one potential way to limit the systemic effects in the securities market of a custodian bank’s financial failure, which could be caused by losses in an area of business unrelated to custody, would be to ring-fence its custody business into a separate subsidiary. The counterargument is that size and diversification of services contribute to a bank’s stability and liquidity. All things being equal, customers holding cash accounts would much rather be exposed to a large diversified financial institution than one with much less capital. Furthermore, there are no clear limits to the ring-fencing approach, which eventually could result in the separation of all business lines and the destruction of the universal bank business model common in many countries.

26 See paragraph 2.5 of ECB (2006): “At a minimum, relevant participants should also be able to close one business day and reopen the following business day on the secondary site”.

27 While banking supervisors focus mainly on capital adequacy (even in the context of operational risks, prudential banking regulation is ultimately linked to capital adequacy, and in the Basel II operational risk assessment), overseers of market infrastructures focus on business continuity arrangements in view of operational risks and their impact on the wider financial markets. See also Russo et al. (2007).

5 CHALLENGES FOR THE CUSTODY INDUSTRY

Future demand for custody services can be expected to increase in line with the expansion of capital markets. Growth in both securities issuance and trading volumes, the increasing use of privately funded pension plans that invest in securities, and the growth of investment portfolios in the Middle East, Russia, China and other new economies are compelling drivers for growth in securities under custody. The range of services offered by custodians can be expected to follow the requirements of clients, particularly in the fund services arena. There are, however, a few key challenges to custodians' ability to maintain growth and profitability.

5.1 DIVERSITY AND INCREASING COMPLEXITY OF ASSETS

The major forces that are most likely to shape the custody industry in the years to come include the continued globalisation of the financial markets, leading to changes in the investment patterns of institutional investors and increased demand for global liquidity management solutions. The competition for superior investment returns and the increasing allocation of institutional investment portfolios to alternative investments – e.g. derivatives, hedge funds, commodities – will require custodians to develop a variety of new and specialised services for these alternatives. The different providers in the custody industry will be impacted in different ways. Because of keen competition that has resulted in progressively lower price levels, custodians of all types are faced with the challenge of revenue compression concurrent with a need to invest.

Global custodians: One major challenge facing global custodians is how to keep up with their institutional investor clients' wider choice of investment assets and the associated specialised service requirements. Financial market innovations and globalisation increase the variety and often the complexity of financial instruments that institutional investors choose to buy. Derivatives and hedge funds, for

example, have become relatively common in institutionally managed portfolios.

Global custodians need to invest not only in technology to process and report on these new asset types, they also need to implement additional operational risk controls. A large global custodian might typically spend several hundred million euros a year on information technology. A global custodian needs to make efficient technology investments so it can reap first-mover benefits from new value added services. Unless the first-mover advantage is sufficiently sustainable, however, competition could erode the premium pricing before the investments yield a significant return. Followers need to invest in technology in order to stay competitive and stay in business. Price competition is keen because scale economies are important in an industry characterised by high fixed technology costs and relatively low marginal costs for servicing incremental business volumes.

In the United States, the need for consistently high investment volumes and economies of scale has led to consolidation in the global custodian industry. As a result, there are a relatively stable and small number of large global custodians and a number of smaller ones with niche specialisations. Niche providers are characterised by premium-priced, value added services provided to a specific customer segment, or by an ability to offer more flexible and customised services that large custodians find more difficult to deliver. Even so, mergers and acquisitions are still ongoing. Two of the largest US global custodians, The Bank of New York and State Street, recently announced combinations with medium-sized firms, Mellon Group and Investors Financial Services Corporation respectively.

In Europe, the global custody business is organised differently than in the United States, and is in particular characterised by less specialisation. Indeed, a large portion of this business is still embedded in non-specific business units and parts of universal banks.

European global custodians are likely to face increasing competition from their US equivalents. The US market is mature and US providers are counting on the European market to ensure their future development. In all regions, global custodians leverage their domestic franchise to develop their business. But US competitors are able to leverage a very large domestic base and benefit from scale economies to fund technology developments necessary in an ever-demanding market. Some European custodians remain focused on servicing their internal business, while others develop a European and even global business independently or through acquisitions. Some other custodians have forged partnerships with US global custodians, acting as the sales agent in their home markets, while the US partner provides the needed technology. As Europe gradually consolidates, competition will crystallise around the key players.

Multi-direct and single-market custodians: This layer of intermediaries specialises in national securities markets. They are nevertheless affected by the diversity of investment activities and increasing complexity of assets in three ways:

Global custodians, which have cost pressure from the substantial amounts they must invest in technology to cope with complexity, tend to negotiate hard with sub-custodians to reduce fees. Intense competition among multi-direct and single-market custodians gives clients significant power to negotiate lower fees and better services.

Brokers and investment banks need liquidity and financing solutions from their custodians. The globalisation of investment flows requires that assets are financed in different markets and regions. These clients demand more sophisticated capabilities in securities financing, collateral management, foreign exchange and cross-currency cash management. The multi-direct and single-market custodian may need to offer a comprehensive solution that extends beyond its geographical coverage.

Single-market custodians have the specific challenge of competing with multi-direct custodians on both service and cost, but with significantly less economies of scale or scope. Banking mergers may help some single-market custodians acquire scale.

5.2 COMPETITION FROM CSDs IN BANKING SERVICES

Some CSDs, in particular those with banking licences, compete with custodian banks in services that involve credit risk taking, such as liquidity provision for settlement, securities financing and collateral management. A CSD that has control over the settlement process for an entire market is in a unique position to integrate core infrastructure services and banking services seamlessly, even on the same processing platform. Custodian banks would find it difficult to match the economies of scale of a market infrastructure (even more difficult if it is a multi-market infrastructure), and could not match the efficiency level of market infrastructures, especially if the value added services are run on the CSD's platform, as none of them would have a client base that includes all participants in the market. Services such as securities financing and collateral management benefit from the network effects of a CSD, whose clients include both investors with assets and brokers who need to borrow them. CSDs that offer securities financing services can disintermediate banks as the ease and convenience of bundled core settlement and securities financing services are especially attractive to investment banks which are heavy users of these services. This could lead ultimately to a reduction of choice and bargaining power of other categories of users, to their detriment. Giving custodians equal access to compete effectively in the provision of banking services could help lower the cost to market participants and increase their negotiating power for better service. Indeed, keen competition at the intermediary level is the mechanism by which reductions in running costs are passed through to the users. However, another scenario is for more CSDs to become

banks in order to generate additional revenue and profits. The implication of this generalised change in the CSD business model in terms of efficiency, stability and benefits for the users would however need to be carefully analysed. Custodian banks are generally not subject to this type of disintermediation threat in markets where the authorities prohibit or restrict CSDs from undertaking activities that involve credit risk taking. The prudential measures are not intended to prevent competition from CSDs; their main objective is to prevent market infrastructures from taking risks not essential to their functions. There is potentially moral hazard associated with a market infrastructure bank being considered too important to fail. Market participants may tend to be less prudent regarding the level and concentration of their risks to the market infrastructure because of an expectation that the central bank would be a lender of last resort in order to prevent a collapse of the market infrastructure, to preserve the notary function performed by the CSD, and to avoid systemic meltdown.

5.3 EUROPEAN CHALLENGES (MIFID, CODE OF CONDUCT AND TARGET2-SECURITIES)

Custodians active in the EU face an additional and specific challenge: Three public authorities' initiatives in the EU may redesign significantly the European custody landscape.

MiFID: The Markets in Financial Instruments Directive (MiFID) gives market participants the right to designate a system (CSD) to settle their transactions, wherever traded in the EU. Implementing this regulation would mean that CSDs could accept as members trading firms that are not a resident in their national market. The ability of EU market participants to obtain remote membership of and access to CSDs, the consolidation of CSDs and market practice harmonisation, are expected to lead to a reduction of the cost of direct CSD access. This makes it more vital for custodians to have economies of scale and scope to offer an attractive economic proposition and value added services. Clients would still be comparing

the cost of direct access versus using a custodian. Even if custodians could still compete through economies of scale compared with individual clients' back offices, the margins would be thinner because the cost base would be much lower. Such developments in the EU may serve to accelerate the pace of consolidation of custody service providers and the trend towards resorting to external providers.

MiFID also means that Member States need to remove impediments to CSDs' ability to hold and process the securities of another CSD in the capacity of intermediary.

Public authorities have encouraged CSDs to compete with each other in the provision of cross-border services, with the intention of driving down the cost of cross-border settlement as one of the means of achieving a single, integrated capital market. This service was nevertheless mostly only offered for foreign securities with a secondary listing on that CSD's national exchange, and competition between CSDs has so far not materialised.

CSDs offering cross-border services act as intermediaries for their membership to access other CSDs.

Code of Conduct: Following an initiative of the European Commission, a Code of Conduct for securities market infrastructures in the 27 EU Member States was adopted in late 2006. The Code of Conduct requires CSDs to grant each other access, so the members of one CSD could use it as an intermediary to hold the securities issued in another CSD. It also allows infrastructures to offer discounts on infrastructure and banking services provided as a bundle. The market infrastructures' inadequate implementation of the Code may lead to unintended consequences. If CSDs extend to each other's services, terms and conditions that are superior or privileged compared with those available to custodian banks, the custodians might find it difficult to compete with CSDs as intermediaries. While the Code may succeed in creating the conditions to enable infrastructures

to compete with each other as intermediaries, it might also encourage them to leverage their dominant infrastructure status to compete with custodians in the provision of banking services. Custodians would consider it important that there be no undue discrimination between members that are CSDs and other categories of members in terms of access conditions, timing and content of information provided, sequence of processing, etc. It is also important that accounting separation be properly enforced to avoid the cross-subsidisation that is harmful to maintaining competition for the benefit of market participants.

TARGET2-Securities: The Eurosystem proposed introducing a shared processing platform for the settlement of securities denominated in euro and potentially other currencies: TARGET2-Securities (T2S). T2S could increase efficiency for custodians as the harmonisation of many aspects of market practices will be accelerated and communication interfaces would be much simplified. CSDs that participate in TARGET2-Securities would be able to offer their members a single-point-of-entry service to settle securities held in any other CSD connected to T2S and pay the same low fee. This feature, while attractive from an operational efficiency perspective, may challenge custodians in at least two ways. The first challenge is disintermediation. If market participants could access multiple markets via membership in one CSD, it would increase the probability that custodians without sufficient scale economies or value added services would lose clients that opt for this alternative. Although these market participants would need to develop additional back-office capabilities to fully replace the service they obtained from the custodians, the benefit of this investment would be spread over all their activities within the euro area. Custodians would need to continue to innovate in value added services to retain existing clients.

The second challenge is increasing competition in banking services. Although the design of T2S is still in its preliminary stage, it may be

possible that a CSD providing a single point of entry to settlement on the T2S platform, in order to gain market share as an intermediary and compete with CSDs that already hold a banking licence, may have an incentive to provide also banking and credit risk taking services to increase revenues. Depending on their jurisdiction, the probable consequence would be that they would also apply for a banking licence or exert pressure on national regulators to be allowed to extend credit to their participants. Custodians may then face more competition from these additional CSDs which were to start offering banking services. On the other hand, it will require significant investments for CSDs to develop those global custodian services, and their users may not want to finance them when competitive solutions already exist with a custodian in a highly competitive environment. In addition, as explained previously, the evolution of CSDs towards credit risk taking activities raises risk concerns and could be detrimental to the safety of T2S and the financial market.

6 CONCLUSIONS

From its origins in physical safekeeping of share certificates, custody has been transformed into a technology-intensive information-processing business. The value of securities issued amounts to over USD 100,000 billion worldwide. The growth of cross-border investments and collective investment schemes has created opportunities for custodians to specialise.

A number of custodians compete in each market segment to deliver services to an array of investors with specific service needs. Once the securities are in a service provider's custody, the latter has the opportunity to provide related services, e.g. liquidity services for trading firms that require financing and yield-enhancing services for investors. Geographically diverse, multi-currency securities portfolios have also given rise to specialised reporting services, which are most conveniently provided by the custodian, which has an overview of the holdings and transactions in the portfolio.

Central securities depositories have been established in almost all markets to immobilise or dematerialise physical securities and to enable their transfer by book entry. Market participants which have the ability to hold securities directly in a CSD may choose to buy the services from a custodian, which has economies of scale and can process transactions and provide asset servicing at a cost lower than the market participant itself. The same service arrangement is sought by asset managers, who choose to specialise in investment rather than the operational administration of the funds that they manage. Custody is essentially a specialised operational service, and there are economies of scope which make it efficient to combine it with the provision of banking services (which, in turn, are backed by the custodian's balance sheet).

The industry's transformation into a technology-intensive business means that economies of scale and scope are very important for a

provider's ability to compete. Industry consolidation has started and is expected to continue. Custodians face competition not only from each other, but also from market infrastructures that are expanding in global custody and banking services. Custodians are calling for the proper separation of market infrastructures' commercial activities, while the CSDs are arguing in favour of freedom from specific regulations or, alternatively, of encumbering custodian banks with the same regulations applicable to the CSDs' central utility functions. There is a risk that the debate about competition may unduly interfere with the regulatory debate about systemic risk issues.

Risks are incurred by both the providers and the users of custody services. Risks related to custody can be classified into operational, financial or legal risks. Essentially, there are no additional categories of risks associated with custody that are unique to a bank's business activities. Custody services offered by banks are under the supervision of banking authorities, which focus on financial risk management, capital adequacy and operational risk mitigation. A large financial institution could cause systemic risk whether it is a custodian or not, and an institution offering custody services does not pose per se more risks to financial system stability than one that does not (rather, systemic implications would depend on an institution's size and the total value of the unsettled payment obligations). The use of prudential operational management practices, combined with regulatory requirements regarding business continuity arrangements, mitigate systemic risk.

The continued globalisation of capital markets will encourage cross-border investment flows and the inclusion of diverse types of assets in professionally managed securities portfolios. While clients' service requirements increase, the pressure for custodians to reduce costs also increases due to competition. This is likely to lead to further consolidation in the industry.

Custody has developed from physical safekeeping into an information provision industry that is quite complex. It is characterised by dominant market infrastructures and multi-tiered intermediation. Cross-border transactions and holdings involve legal risks that are still being addressed. However, the interest in securities investments and the demand for custody services are expected to continue to grow. At the same time, costs are expected to fall as a result of more efficient market infrastructures and competition among intermediaries.

ANNEX I

Custodian banks in the EU

Member States	Austria	Belgium	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Slovenia	Spain
	€	€	€	€	€	€	€	€	€	€	€	€	€
Custodian banks													
1 Banca Intesa								x					
2 Banco Espirito Santo											x		x
3 Banco Santander											x		x
4 Bancpost													
5 Bank Austria Creditanstalt	x												
6 Bank BPH													
7 Bank of Ireland Securities Services							x						
8 Bank of New York													
9 Bank Polska Kasa Opieki													
10 BBVA													x
11 BHF-Bank AG					x								
12 BNP Paribas		x		x	x	x		x		x	x		x
13 BRE Bank													
14 Bulgarian Postbank													
15 Ceska Sporitelna													
16 Citigroup	x	x		x	x	x	x	x		x	x		x
17 Commerzbank					x								
18 Credit Agricole Investor Services				x									
19 CSOB													
20 Cyprus Popular Bank													
21 Danske Bank													
22 Deutsche Bank					x			x		x			x
23 Dexia BIL													x
24 EFG Eurobank						x							
25 Erste Bank	x												
26 Fortis Bank		x								x			
27 Handelsbanken			x										
28 Hansabank													
29 Hellenic Bank													
30 HSBC													
31 ING		x								x			
32 IXIS Urquijo													x
33 KAS Bank										x			
34 KBC		x											
35 Kereskedelmi és Hitelbank Rt													
36 Komerční Bank													
37 Kredietbank Luxembourg									x				
38 Millennium bcp											x		
39 National Bank of Greece S.A.						x							
40 Nova Ljubljanska Banka												x	
41 Nordea			x										
42 Raiffeisen Zentralbank	x											x	

Bulgaria ¹⁾	Cyprus	Czech Republic	Denmark	Estonia	Hungary	Latvia	Lithuania	Malta	Poland	Romania ¹⁾	Slovakia	Sweden	United Kingdom	Total presence	
														1	1
														1	2
														2	3
														1	4
														1	5
														1	6
														1	7
														1	8
														1	9
														1	10
														1	11
														8	12
														1	13
														1	14
														1	15
														18	16
														1	17
														1	18
														2	19
														1	20
														1	21
														7	22
														1	23
														1	24
														1	25
														2	26
														2	27
														3	28
														1	29
														2	30
														8	31
														1	32
														2	33
														1	34
														1	35
														1	36
														1	37
														2	38
														1	39
														1	40
														4	41
														4	42

Custodian banks in the EU (cont'd)

Member States	Austria	Belgium	Finland	France	Germany	Greece	Ireland	Italy	Luxem- bourg	Nether- lands	Portugal	Slovenia	Spain
	€	€	€	€	€	€	€	€	€	€	€	€	€
Custodian banks													
43 SEB Securities Services			×										
44 SKB Banka												×	
45 Slovenska Sporitelna													×
46 Société Générale				×		×							
47 UniCredit					×	×		×				×	
Total custodian banks per country	4	5	3	4	6	6	2	5	1	6	5	4	7

Notes: The information is based on the Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey". The survey is based on nearly 10,000 responses worldwide. A custodian must secure a minimum number of responses from institutional clients in each market in order to be listed in the survey. Some custodians which specialise in certain market segments, such as retail consumers, do not participate in this survey. Only surveyed markets are included in this chart, although there are other markets (usually small) with stock exchanges and custodians. € Countries highlighted in the shaded area have adopted the euro.

1) At the time of the survey, Bulgaria and Romania were not part of the EU, but they joined on 1 January 2007.

Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Hungary	Latvia	Lithuania	Malta	Poland	Romania	Slovakia	Sweden	United Kingdom	Total presence	
			×	×		×	×					×		6	43
														1	44
											×			1	45
														2	46
×		×		×	×	×	×			×	×			12	47
4	3	7	3	4	6	3	3	1	7	4	5	4	4		

ANNEX 2

Custodian banks in non-EU Europe												
Custodian banks	Countries	Bosnia Herzegovina	Croatia	Iceland	Kazakhstan	Norway	Russia	Serbia Montenegro	Switzerland	Turkey	Ukraine	Total presence
	1	Arion Custody Service			×							
2	BNP Paribas								×			1
3	Citigroup						×		×	×		3
4	Credit Suisse								×			1
5	Deutsche Bank						×			×		2
6	DnB NOR					×						1
7	Garanti Bankasi									×		1
8	Handelsbanken					×						1
9	HSBC				×					×		2
10	ING						×				×	2
11	Islandsbanki			×								1
12	JSC Bank VTB						×					1
13	Kaskommertzbank				×							1
14	Landsbanki			×								1
15	Nordea					×						1
16	Nova Ljubljanska Banka		×									1
17	OJSC Universal Bank										×	1
18	Privredna Banka Zagreb		×									1
19	RZB Group		×				×	×				3
20	SEB Securities Services					×						1
21	SIS SegalInterSettle								×			1
22	Société Générale		×									1
23	Turkyie Is Bankasi									×		1
24	UBS								×			1
25	Unicredit	×	×				×	×			×	5
Total custodian banks per country		1	5	3	2	4	6	2	5	5	3	36

Notes: The information is based on the Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey". The survey is based on nearly 10,000 responses worldwide. A custodian must secure a minimum number of responses from institutional clients in each market in order to be listed in the survey. Some custodians which specialise in certain market segments, such as retail consumers, do not participate in this survey. Only surveyed markets are included in this chart, although there are other markets (usually small) with stock exchanges and custodians.

ANNEX 3

Custodian banks in Asia Pacific

Custodian banks		Countries	Australia	Bangladesh	China	Hong Kong	India	Indonesia	Japan	Korea
1	ANZ		×							
2	Bangkok Bank									
3	Bank of Tokyo Mitsubishi								×	
4	China Construction Bank				×					
5	Citigroup		×		×	×	×	×	×	×
6	DBS									
7	Deutsche Bank					×	×	×		×
8	Hana Bank									×
9	HSBC		×		×	×	×	×	×	×
10	Industrial Commercial Bank China				×					
11	Kasikornbank									
12	Kaskommertzbank									
13	Kookmin Bank									×
14	Korea Exchange Bank									×
15	Maybank									
16	Mizuho								×	
17	National Australia Bank		×							
18	Standard Chartered Bank			×	×	×	×	×	×	×
19	Sumitomo Mitsui Banking								×	
20	TMB Bank									
21	United Overseas Bank									
22	Westpac		×							
Total custodian banks per country			5	1	5	4	4	4	6	7

Notes: The information is based on the Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey". The survey is based on nearly 10,000 responses worldwide. A custodian must secure a minimum number of responses from institutional clients in each market in order to be listed in the survey. Some custodians which specialise in certain market segments, such as retail consumers, do not participate in this survey. Only surveyed markets are included in this chart, although there are other markets (usually small) with stock exchanges and custodians.

	Malaysia	New Zealand	Pakistan	Philippines	Singapore	Sri Lanka	Taiwan	Thailand	Vietnam	Total presence	
		x								2	1
								x		1	2
										1	3
										1	4
	x	x	x	x	x	x	x	x	x	16	5
					x					1	6
	x		x	x	x	x	x		x	11	7
										1	8
	x	x		x	x	x	x	x	x	15	9
											10
										1	
								x		1	11
										0	12
										1	13
										1	14
	x									1	15
										1	16
										1	17
	x		x	x	x	x	x	x		14	18
										1	19
								x		1	20
	x				x					2	21
		x								2	22
	6	4	3	4	6	4	4	6	3	76	

ANNEX 4

Custodian banks in Africa and the middle east

Custodian banks	Countries	Bahrain	Botswana	Egypt	Ghana	Israel	Ivory Coast	Jordan	Kenya	Kuwait	Lebanon	Mauritius
1 Arab Bank								×				
2 Absa Investor Services												
3 Amen Bank												
4 Attijariwafa Bank												
5 Banque de Tunisie												
6 Bank Hapoalim						×						
7 Bank Leumi le-Israel						×						
8 Banque Internationale Arabe Tunisie												
9 Banque Marocaine (BMCI)												
10 Banque Maroc Commerciale du Ext.												
11 Barclays			×		×				×			×
12 Citigroup				×		×						
13 Commercial International Bank				×								
14 FNB International Banking												
15 HSBC		×		×				×		×	×	×
16 Israeli Discount Bank						×						
17 National Bank of Egypt				×								
18 Nedbank												
19 Société Générale							×					
20 Stanbic Bank			×		×				×			
21 Standard Bank												
22 United Mizrahi Bank						×						
Total custodian banks per country		1	2	4	2	5	1	2	2	1	1	2

Notes: The information is based on the Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey". The survey is based on nearly 10,000 responses worldwide. A custodian must secure a minimum number of responses from institutional clients in each market in order to be listed in the survey. Some custodians which specialise in certain market segments, such as retail consumers, do not participate in this survey. Only surveyed markets are included in this chart, although there are other markets (usually small) with stock exchanges and custodians.

Morocco	Namibia	Nigeria	Oman	Palestine	Qatar	Saudi Arabia	South Africa	Swaziland	Tunisia	Uganda	United Arab Emirates	Zambia	Zimbabwe	Total presence	
														1	1
							×							1	2
									×					1	3
×														1	4
									×					1	5
														1	6
														1	7
									×					1	8
														1	9
×														1	10
										×		×	×	7	11
														2	12
														1	13
							×							1	14
			×	×	×	×					×			11	15
														1	16
														1	17
							×							1	18
×							×							3	19
		×											×	5	20
	×						×	×						3	21
														1	22
4	1	1	1	1	1	1	5	1	3	1	1	1	2	47	

ANNEX 5

Custodian banks in the Americas

Custodian banks		Countries	Argentina	Bermuda	Brazil	Canada	Chile	Colombia
1	Banco Bradesco				×			
2	Banco de Crédito del Peru							
3	Banco de la Producción							
4	Banco Itau				×			
5	Banco Real				×			
6	Banco Rio de la Plata		×					
7	Banco Santander				×		×	×
8	Banco Wiese Sudameris							
9	BankBoston		×		×		×	
10	Bank of New York							
11	Bank of Nova							
12	BBVA Bancomer							
13	Brown Brothers Harriman							
14	CIBC Mellon					×		
15	Citigroup		×		×	×	×	×
16	Deutsche Bank		×		×			
17	FirstCaribbean International Bank							
18	HSBC		×	×	×			
19	JP Morgan							
20	RBC Dexia Investor Services					×		
21	Swiss American Securities							
22	Unibanco União Bancos Brasileiros				×			
Total custodian banks per country			5	1	8	3	3	2

Notes: The information is based on the Global Custodian magazine's "2006 Agent Banks in Major and Emerging Markets Survey". The survey is based on nearly 10,000 responses worldwide. A custodian must secure a minimum number of responses from institutional clients in each market in order to be listed in the survey. Some custodians which specialise in certain market segments, such as retail consumers, do not participate in this survey. Only surveyed markets are included in this chart, although there are other markets (usually small) with stock exchanges and custodians.

	Ecuador	Jamaica	Mexico	Panama	Peru	USA	Uruguay	Venezuela	Total presence	
					×				1	1
					×				1	2
	×								1	3
									1	4
									1	5
									1	6
			×					×	5	7
					×				1	8
							×		4	9
		×				×			1	10
									1	11
		×	×					×	2	12
						×			1	13
									1	14
			×		×	×		×	9	15
									2	16
		×							1	17
				×					4	18
						×			1	19
						×			1	20
						×			1	21
									1	22
	1	2	3	1	2	5	1	3	42	

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