Custody 2.0
TARGET2-Securities and its implications for the European post-trade market
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1. Introduction

The European market for securities servicing has been transformed by a number of regulatory initiatives aimed at overcoming inefficiencies in cross-border trading. The latest among these is the TARGET2-Securities (T2S) project, recently launched by the Eurosystem, which comprises the European Central Bank (ECB) and the central banks of EU member states that have adopted the Euro.

T2S is intended to provide a standard settlement and clearing process in central bank money for all Euro-denominated securities. Despite some open questions about the final design of T2S – regarding, for example, governance and pricing – the system is expected to go live in 2013.

While the entities most obviously and directly affected will be the Central Securities Depositories (CSDs), who will be required to outsource their settlement functions to the new system, T2S has implications for all participants in the post-trading market. Broadly, we expect it to increase price transparency and competition in the post-trade market, benefiting the buy-side and encouraging consolidation on the sell-side.

Businesses affected by T2S should now be preparing for its launch, not only by making the technical changes that will be required to operate within the new system but by refining their business models in line with expected changes in the post-trade market.

This report, produced jointly by Deutsche Bank's Domestic Custody Services unit and Oliver Wyman, is intended to provide a starting point for businesses preparing their own impact assessment. It describes the planned T2S system and its history, and explores the likely implications for various kinds of post-trade market participants, including CSDs, custodians, broker-dealers, asset managers, banks and exchanges.
2. The post-trading landscape in Europe

To understand the impact of T2S, it is worth looking at past developments in post-trading that have led to today’s integration of securities settlement across Europe and triggered current developments.

The stock market crash of 1987 focused attention on decreasing risk and increasing efficiency in global markets. While securities trading had become quite international, there had been only limited coordination amongst regulators. The Group of Thirty (G30), an international body of leading financiers and academics, published a set of recommendations aimed at making post-trade arrangements more consistent across countries.¹

The first G30 report² recommended that there be one CSD per market. By 2003, when the second report³ was published, most markets in Europe complied with this recommendation and the focus shifted towards overcoming inefficiencies in cross-border clearing and settlement, and reducing risks by creating interoperability across markets.

With the so-called Lisbon Agenda in 2000,⁴ the EU began to recognise the significance of clearing and settlement for the integration of financial markets. In 2001, the Lamfalussy Report, although focussing mostly on other issues in financial regulation, stated that cross-border clearing and settlement in Europe were comparatively expensive. It suggested that, while market consolidation should be mainly driven by the private sector, there may be a need to support this process through regulatory reform: specifically, by removing regulatory or market obstacles to competition.

¹ The recommendations built on the work of the International Society of Securities Administrators (ISSA) now called the International Securities Services Association, an international organisation founded by the heads of securities services of several international banks. During a conference titled “Global Securities Investments - Processing Issues and Solutions” held in 1988, ISSA had developed a set of conclusions which were closely connected to the nine recommendations of the first G30 report. Later, ISSA conducted several surveys to analyse compliance surveys of the markets using G30 recommendations as templates
² “Clearance and Settlement Systems in the World’s Securities Markets”, 1989
³ “Global Clearing and Settlements: A Plan of Action”, 2003
⁴ The Lisbon Agenda (also referred to as Lisbon Strategy) is an action and development plan for the European Union. Its aim is to make the EU “the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010”
A group of financial market experts chaired by Alberto Giovannini was asked to analyse the inefficiencies and barriers in European cross-border clearing and settlement. It produced two reports: the so-called Giovannini Reports, in 2001 and 2003.

The EU responded with several initiatives:

- **2004/2009: ESCB/CESR recommendations**
  - A joint working group formulated standards and recommendations for securities settlement systems and Central Counterparties (CCPs)
  - A first report was published in 2004 and the final recommendations have been adopted in 2009

- **2007: Markets in Financial Instruments Directive (MiFID)**
  - The directive provided for greater competition between exchanges and alternative channels by removing the “concentration” rule, according to which orders had to be routed to national exchanges. This encouraged the development of alternative trading venues or Multilateral Trading Facilities (MTFs).
  - The success of MTFs hinged on the creation of new pan-European CCPs to facilitate the settlement of pan-European trading in the home CSD of the security

- **2007: Code of Conduct (CoC) for clearing and settlement**
  - Pressure increased for more competition and interoperability. Self-regulation by the market was the preferred solution
  - The three elements of the CoC are:
    - Price transparency
    - Granting of mutual access between providers
    - Unbundling of services
Case studies

Post-trading services providers have driven various initiatives to make cross-border settlement more efficient over the years. Examples are Euroclear’s Single Platform and the LinkUp Markets initiative.

Euroclear’s Single Platform

Euroclear is one of the largest providers of settlement services in Europe. Over time, the organisation has acquired CSDs in France (2001), the Netherlands (2002), the UK (2002), Belgium (2006), and Finland and Sweden (2008). These acquisitions should be seen in the context of Euroclear’s vision of a domestic market for settlement in Europe that it started to develop in 2001. Next to the ‘national’ service that each of the CSDs belonging to the group provided, Euroclear also wanted to offer a more comprehensive service for cross-border investors in Europe. They aimed to consolidate the different national settlement systems on one platform, making cross-border settlement more cost-efficient.

In France, Belgium and the Netherlands, the trading and clearing processes had already been integrated by the Euronext stock market and the single clearing house Clearnet. By also integrating settlement, the three markets would work like one domestic market. This was identified as a pre-condition for delivering a single order book for on-exchange trading. But, to achieve this, harmonisation of market practices was necessary.

Harmonising clearing and settlement in Europe is a time-consuming process that requires many actors to coordinate their efforts on, for example, synchronised settlement times, corporate action timelines, account structures and messaging standards. Euroclear worked on this with market participants through a considerable number of consultation papers and discussions. At the beginning of 2009 the Euroclear Settlement for Euronext-zone Securities (ESES) was launched. This provided an integrated settlement solution for France, Belgium and the Netherlands. Euronext simultaneously completed its project for the single order-book.

Euroclear aims eventually to integrate all legacy systems of those entities which belong to the Euroclear group on a Single Platform. The T2S project, which overlaps with the goals of Euroclear’s Single Platform, means that Euroclear has had to revise this plan and retain some legacy systems:

“[…] the revised roll-out of the final stage of the Single Platform development will concentrate on value added services that complement core settlement activity. Core settlement activity will remain on our legacy platforms and will also be available later through the European Central Bank’s TARGET2-Securities (T2S).”
The launch timetable for the next steps is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Common Communication Interface for ESES</td>
</tr>
<tr>
<td>2010</td>
<td>Single Platform Custody</td>
</tr>
<tr>
<td></td>
<td>Single Platform Multi-Currency Central Bank Money for clients of Euroclear UK &amp; Ireland</td>
</tr>
<tr>
<td>2011</td>
<td>Single Platform Collateral Management</td>
</tr>
<tr>
<td></td>
<td>Single Platform Transaction Management</td>
</tr>
<tr>
<td>2012</td>
<td>Migration of Euroclear Finland and Sweden to the Single Platform</td>
</tr>
</tbody>
</table>

Source: Euroclear website

**LinkUp Markets**

LinkUp Markets is a joint venture between the CSDs of Germany, Cyprus, Greece, Spain, Austria, Switzerland, Denmark and Norway. It was announced in April 2008 and went live approximately a year later. The South African CSD has also joined the initiative recently.

Contrary to Euroclear’s strategy of replacing national settlement systems with a common application, LinkUp Markets builds on the principle of interoperability. A system for routing transactions and converting different messaging formats between participating CSDs has been built. Settlement still occurs in the issuer market on correspondent accounts opened by CSDs with one another on the condition that the connected CSDs have built bilateral links with each other.

The participating CSDs have also stated their intention to collaborate with regards to cross-border asset servicing, e.g. corporate events, tax, shareholder information, reporting etc. The first CSDs connected to LinkUp Markets earlier this year, although it will take until next year before all LinkUp Markets partners are live.
3. The T2S project

3.1. Beginnings of the project

Along with the European Commission, the European Central Bank (ECB) has also begun to play an important role in the post-trade market. Its main tasks are to maintain price stability, implement monetary policy, and ensure the smooth operation of payment systems. However, over recent years, a greater overlap has been identified between these tasks and financial markets integration, especially with regard to cash and securities.

The ECB built TARGET, a system for the real-time settlement of cross-border cash payments in Europe through linking the national payment systems, which went live in 1999. This arrangement was later replaced by a new single platform: TARGET2. The way CSDs and central banks interact for Delivery-versus-Payment (DvP) transactions differs across member states. Some markets use an “integrated” model, where the national central bank outsources the relevant cash accounts to the CSD. Other markets have an “interfaced” model, where the CSD interacts with the central bank in much the same way that other market participants would. The ongoing consolidation of CSD groups and migration of additional markets to the integrated model caused a policy debate about the implications for competition in Europe.

To create a level playing field and ensure that cash and securities accounts would be on the same platform, the ECB proposed a de facto “reverse integration”: all CSDs would be asked to outsource the cash and securities accounts to a new central bank-owned platform: TARGET2-Securities (T2S). Instead of the central bank outsourcing cash accounts to the CSD, the CSDs would be asked to outsource their settlement operations to the central bank (reverse integration).

Gertrude Tumpell-Gugerell, the ECB board member responsible for financial infrastructure, first publicly launched the idea for a pan-European settlement system in July 2006. This was followed by a consultation with CSDs and other market participants, with an initial view to taking a decision on the project in summer 2007.
However, many questions remained open. The ECB conducted a legal assessment and a feasibility study to quantify the costs and benefits of the new settlement system (see 6.1 below). A governance structure was set up to allow a group of CSD, user and central bank representatives to formulate and review the system’s user requirements. The representatives were also supported by technical expert groups.

In early 2008, a decision was made to proceed with the T2S project. In May 2008, the Governing Council, the main decision-making body of the ECB, decided how it would coordinate its work and involve stakeholders in the governance process of this project in 2008/09 (see illustration below).

Exhibit 1: T2S project governance structure

In mid 2009, the structure was amended to include a sub-group on Operational Framework and a Programme Board.
3.2. Planned timelines and project status

Exhibit 2: T2S project timelines

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ ECB decides to further explore the setting up of a new centralised settlement platform in the Euro area</td>
<td>▪ Positive decision to build T2S after evaluating the user feedback on the ECB proposal</td>
<td>▪ Development of required technical infrastructure/software for T2S</td>
</tr>
<tr>
<td>Feasibility study</td>
<td>Functional specifications</td>
<td>Testing (Q3 2012-Q2 2014)</td>
</tr>
<tr>
<td>▪ Conduction of an operational, legal, economic and technical feasibility study</td>
<td>▪ Preparation of general functional specifications</td>
<td>▪ Testing on module integration, interfaces, back-up facilities, etc.</td>
</tr>
<tr>
<td>▪ Positive decision in March 2007</td>
<td>Signing of Memorandum of Understanding with 27 CSDs</td>
<td>▪ Finalisation of supporting documentation</td>
</tr>
<tr>
<td>User requirements</td>
<td>Development of a legally binding “framework agreement”</td>
<td>Migration (Q2 2013-Q1 2014)</td>
</tr>
<tr>
<td>▪ Public consultation on user requirements (CSDs, market participants, national banks, etc.)</td>
<td></td>
<td>▪ Testing on module integration, interfaces, back-up facilities, etc.</td>
</tr>
<tr>
<td>Offer/proposal to CSDs</td>
<td>Detailed functional specifications</td>
<td>▪ Finalisation of supporting documentation</td>
</tr>
<tr>
<td>▪ ECB issued a proposal to all European CSDs to join the T2S initiative in May 2008</td>
<td>▪ Finalisation of user detailed functional specifications</td>
<td></td>
</tr>
</tbody>
</table>

Source: ECB T2S project webpage, Deutsche Bank, Oliver Wyman

The main objective for 2009/2010 is to prepare General Functional Specifications and subsequently User Detailed Functional Specifications. According to the ECB’s plan, the platform will be launched in mid 2013. As with any project of this scale, the planning includes a number of uncertainties that will have to be addressed as the project progresses.

In 2008 the ECB invited all European CSDs to indicate their interest in outsourcing operations to T2S. In March 2009, the ECB published a draft Memorandum of Understanding between the Eurosystem and CSDs regarding the development of T2S and the future contractual framework.

In July 2009, 27 CSDs signed a Memorandum of Understanding with the Eurosystem with a view to finalising contractual negotiations by the beginning of 2010 (all 16 EUR-Countries and 9 non-EUR countries). It is yet to be seen whether all CSDs will finally enter into the contractual relationship. Discussions are ongoing regarding:

- Eligibility: The national central bank may need to agree to outsource their home currency processing to T2S
- Business case: Some CSDs previously stated that they did not want to sign the MoU due to lack of business case

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5 Some countries have two CSDs, e.g. Belgium
In terms of T2S implementation, each CSD will have to formulate a detailed migration plan for their users. The operational impact on users (change in lifecycles, etc.) will become much clearer at that point. Participating CSDs are required to issue a provisional migration plan explaining how they will migrate themselves and their clients to T2S.

### Exhibit 3: Overview of CSDs that have signed the MoU

<table>
<thead>
<tr>
<th>Country</th>
<th>Euro/non-Euro</th>
<th>CSD 1</th>
<th>CSD 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Euro</td>
<td>OeKB</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>Euro</td>
<td>Euroclear Belgium</td>
<td>National Bank of Belgium (NBB-SSS)</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Euro</td>
<td>Cyprus Stock Exchange</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Euro</td>
<td>Euroclear Finland</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Euro</td>
<td>Euroclear France</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Euro</td>
<td>Clearstream Banking Frankfurt</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>Euro</td>
<td>Hellenic Exchange Holding, Clearing, Settlement and Registry – HELEX</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>Euro</td>
<td>See United Kingdom</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Euro</td>
<td>Monte Titoli</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>Euro</td>
<td>Clearstream Banking Luxembourg in its capacity as CSD</td>
<td></td>
</tr>
<tr>
<td>Malta</td>
<td>Euro</td>
<td>Malta Stock Exchange</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>Euro</td>
<td>Euroclear Netherlands</td>
<td>Bank of Greece SSS (BOGS)</td>
</tr>
<tr>
<td>Portugal</td>
<td>Euro</td>
<td>INTERBOLSA</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>Euro</td>
<td>Central Securities Depository of the Slovak Republic</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>Euro</td>
<td>KDD – Central Securities Clearing Corporation Inc.</td>
<td>Banco de Portugal (SITEME)</td>
</tr>
<tr>
<td>Spain</td>
<td>Euro</td>
<td>Iberclear</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Non-Euro</td>
<td>VP SECURITIES</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>Non-Euro</td>
<td>AS Eesti Väärtapaberikeskus</td>
<td></td>
</tr>
<tr>
<td>Iceland</td>
<td>Non-Euro</td>
<td>Icelandic Securities Depository</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>Non-Euro</td>
<td>Latvian Central Depository</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>Non-Euro</td>
<td>Central Securities Depository of Lithuania, plc</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>Non-Euro</td>
<td>Depozitarul Central</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Non-Euro</td>
<td>Euroclear Sweden</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>Non-Euro</td>
<td>SIX SIS</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Non-Euro</td>
<td>Euroclear UK and Ireland</td>
<td></td>
</tr>
</tbody>
</table>

Source: ECB T2S project webpage
4. What is T2S?

4.1. High-level functional description

“T2S is a platform for core, neutral and borderless securities settlement [...]. It will provide harmonised and commoditised delivery-versus-payment settlement in central bank money in euro (and possibly other currencies) in more or less all securities circulating in Europe.” (T2S Project Team, 2008)

The outsourcing of settlement from national CSDs’ platforms to a pan-European platform should not be confused with the creation of a “super-CSD”. Investors and their agents cannot have an account with T2S or any other form of business relationship. This is left to CSDs. However, users can access T2S indirectly, via a CSD, or potentially access T2S via direct connectivity. In either case, an account with a CSD will still be required. It might be helpful to think of it as connectivity consolidation, as opposed to asset consolidation. While all securities will be settled on one platform, and (theoretically) only one interface is needed to connect to it, they will still have to be held at the respective national CSDs (see the illustrations below).

It has been decided that T2S will provide “lean” services, with other services provided by CSDs or agent banks.

Exhibit 4: High-level T2S system diagram

Source: ECB T2S project webpage

6 It should be noted that settlement is here defined in a narrow sense, also referred to as “lean” settlement. Please also see below where we describe the impact on CSDs
7 We use the term “agent bank” interchangeably with the term “local custodian”
T2S builds on the infrastructure of the TARGET2 (cash) model, for example, by re-using technical components and preserving organisational elements such as the existing service desks. However, there are a number of key differences in terms of service depth, access possibilities and the commercial relationships between investors and the system. These are explored further below.

### 4.1.1. Direct connectivity

Direct connectivity allows T2S parties to input settlement instructions and to receive reports directly, without the need to route such information via the technical interface of the CSD. The ECB’s aims are to:

- Provide flexibility to T2S parties
- Potentially reduce costs for users if back-office processes can be streamlined
- Ultimately reduce the number of interfaces

**Exhibit 5: Illustration of direct connectivity**

However, the Eurosystem has left it to the discretion of CSDs to allow users such a connection, and it is not supposed to affect the business or legal relationship between CSDs and their users. As a result, a business relationship with each CSD is needed to be able to instruct settlements in each respective country via direct connectivity.

Providing direct connectivity will also require CSDs to achieve a certain technical standard in-house. For instance, to remove Giovannini Barrier 1, T2S will use ISO 20022 as standard for all
T2S communications. CSDs have been asked to implement these standards by the end of March 2011. It currently seems unlikely that all CSDs will meet this target.\(^8\)

Part of the vision for T2S is that investors could use a single CSD account to access all T2S securities. The investor would be able to instruct settlement of all T2S-eligible securities via direct connectivity and the investor’s CSD would have cross-links with and hold accounts at all other CSDs. This may give CSDs a role similar to that of global custodians.

While this option already exists at some CSDs today, and CSDs compete with agent banks in cross-border custody services, it is not the main mechanism for accessing foreign markets. Investors typically use specialized custodian banks for managing their cross-border business because of their expertise and cost-effectiveness. In future, however, T2S may create more competition between CSDs and custodians.

### 4.2. Pricing

T2S pricing was a much debated topic in the first half of 2009. Before agreeing to outsource settlement to the ECB, CSDs want to know how much they will be charged. Pricing is also important for the wider market, as it will shape the economics and incentives for market participants. This is a challenge for the ECB, since neither transaction volumes in 2013 and beyond, nor the final development cost can be known with certainty today.

The basic pricing structure will probably involve a price list that specifies charges for different kinds of settlement instructions. The ECB has suggested a guaranteed maximum price of 15 cents per instruction for the first two years (aiming for 10 cents if volumes suffice). In addition, there will be a fixed price element, and an “admin” charge per transaction (which is targeted to be not more than 30% of the total T2S settlement cost). CSDs will also add their own costs for account maintenance, static data support, etc.

The Italian CSD (Monte Titoli) proposed an alternative pricing scheme by which charges would be based on the use of system resource. It was agreed to take elements of this into consideration, but that it would be neither practical nor transparent to base the pricing structure on this entirely.

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\(^{8}\) At the CESAME II meeting in June 2009, it was discussed whether to postpone the deadline
Still under discussion are volume discounts. The three options are:

- No volume discounts: this would not ensure a completely level playing field
- Volume discounts at CSD level: this is the preferred option of most CSDs (especially of the larger ones)
- Volume discounts calculated at user level: this is the preferred option of many end-users, as it would mean that CSDs have to compete over the most user-friendly and cost-effective T2S access

It sometimes seems that a disproportionate amount of attention is paid to the T2S settlement fee compared to the end-to-end cost of settlement. Settlement consists of many steps, as shown below for the case of a custodian bank.

**Exhibit 6: Post-trading value-chain**

<table>
<thead>
<tr>
<th>Risk management/pre-funding</th>
<th>Pre-matching/matching</th>
<th>Settlement and admin</th>
<th>Status messages etc.</th>
<th>Inventory mgmt/re-alignment</th>
<th>Fail/deletions/exceptions</th>
<th>Confirmation/reporting</th>
</tr>
</thead>
</table>

Source: Deutsche Bank, Oliver Wyman

Settlement services differ from one provider to another with regard to pro-active support, the availability of straight-through-processing, exceptions management and ancillary services, such as giving clients access to decision makers and market experts. For instance, comparisons about the post-trading costs between the US and the EU usually take insufficient account of the difference between services provided on an infrastructural level and services provided by financial intermediaries, which result in very different cost structures.

A broker-dealer or an institutional investor with direct CSD access needs in-house operations to manage its positions, deal with exceptions and so on. The external fee charged by the service provider is thus only one component of the total, end-to-end settlement cost.

### 4.3. Giovannini Barriers and harmonisation

As mentioned above, there are still many barriers to cross-border clearing and settlement the so-called Giovannini Barriers. T2S is giving new impetus to the harmonisation of practices across Europe. We expect a significant number of market changes around the time of its introduction, for which all industry participants will need to be prepared.
The most important barriers in the context of T2S are:

- **Barrier 3: Corporate actions**
  - There are a variety of different rules, information requirements and deadlines for corporate actions
  - The rules governing securities markets also differ: for example, those determining the moment when a purchaser is treated as having become the owner of a security

- **Barrier 11: Restrictions on withholding agents**
  - The majority of EU member states restrict tax withholding responsibilities to entities established within their own jurisdiction (with some exceptions, e.g. France, where non-French entities are allowed to apply for a local withholding agent status with respect to dividends on French equities)
  - This is a disadvantage for foreign intermediaries in offering at-source relief from withholding tax

- **Barrier 12: Restrictions on tax collection**
  - The functionality to collect transaction taxes is usually integrated in the local settlement system
  - Therefore, the foreign investor’s choice of provider for securities settlement is reduced, because it is necessary to link up with the local settlement system

Harmonizing corporate actions processes in the EU is a complex task because corporate actions practices are intertwined with national legal and tax practices, and there are many jurisdictions involved.

The European Commission set up its Clearing and Settlement Advisory and Monitoring Expert group (CESAME) in 2004 to coordinate the removal of the Giovannini barriers. Its work concluded in 2008 with a report on the developed standards regarding the various barriers. In 2008, CESAME II was set up in order to continue this work, and to monitor the implementation of the developed solutions.

By 2013, progress with regards to corporate actions on flows (i.e. market claims, transformations and buyer protection) is likely. The process is driven by:

- The Corporate Actions Joint Working Group (CAJWG), consisting of issuers, market infrastructure providers and intermediaries
- The T2S sub-group for corporate actions (CASG)
We also expect more harmonisation in the area of mandatory and voluntary corporate actions and proxy voting following the introduction of T2S. However this may take several years. Harmonisation related to tax will take the longest to achieve, since it will require contentious new legislation in member states.

4.4. T2S-related projects in the EU

T2S is not the only system and market change driven by the ECB that will affect the securities industry. Market participants need to consider other major projects and their overlap with T2S when deciding their business approach.

Work is underway to create a new collateral management system for the Euro-area called CCBM2. This will replace the existing CCBM, an agreement for mobilising eligible collateral on a cross-border basis. CCBM2 will provide a centralised IT solution for central banks by 2011 to handle collateral and remove some restrictions in terms of cross-border access to intraday credit. The CCBM2 project thus complements T2S.

In addition, a European Single Interface (ESI) is under discussion. This would provide a single technical access to the various services offered by the ECB, including T2S, CCBM2 and the cash system TARGET2. It could also help to automatically generate a consolidated cash and securities position stemming from these three sources. The greater the business scope of market participants (securities, collateral management, cash payments), the greater will be the benefits from re-using the offered services to access the market.

4.5. Non-Euro currencies

Principle 10 in the T2S URD states:

“T2S shall be technically capable of settling currencies other than the euro. T2S will be technically capable of providing settlement not only in euro central bank money but also in non-euro central bank money. An explicit request by the relevant non-Euro system central bank(s) in coordination with the local market community is required to activate this service. Non-Euro system central banks would be expected to adapt to a harmonised, standardised interface.”

Currently, three non-Euro countries (Denmark, Lithuania and Sweden) have signalled that they are committed to joining T2S with their local currency. Other Eastern European countries (Estonia, Latvia and Romania) are likely to join when they adopt the Euro.
The UK is actively analysing the option of joining T2S with Sterling but is seeking to answer some open questions before taking a decision. In a letter to the ECB (June 2009), the Bank of England stated that, while in the Euro-zone there is a need for a more integrated settlement infrastructure, the UK already has a single settlement platform for all sterling-denominated securities. There may be a case for integrating settlement further across Europe, but two issues need to be settled. First, in terms of governance, there would need to be assurance that the Bank could “exercise direct control over sterling settlement in T2S” and would be represented appropriately. Secondly, the Bank would need to understand better “the cost of sterling settlement within T2S, and how that compares with the current and likely future cost of settlement in EUI (Euroclear UK & Ireland)”. Discussions between the Bank of England and the ECB will take place over the coming months to resolve these issues.

The CSDs of Iceland and Switzerland have also signed the “Memorandum of Understanding” with the ECB (see 3.2).

4.6. T2S and the financial crisis

The financial crisis has had two main effects that could have an impact on T2S:

- Trading volumes have decreased:
  - The ECB’s feasibility assessment of T2S is based on 2007 settlement volumes, which in hindsight looks like a peak year
  - Since per-transaction fees depend on volumes, these might now be slightly higher than anticipated

- Risk-awareness has increased:
  - Any risk-reducing initiatives are now even more valued by the market; focus on cost reduction has shifted to risk reduction (even if it comes at higher cost)
  - Improving liquidity and collateral efficiency is even more valued by market participants
  - Having a strong liquidity provider with deep knowledge of the customer’s business has been proven to be very valuable. Fragmentation of the value chain might be undesirable

Overall, the financial crisis will in our view not materially impact the T2S feasibility.
The role of public or private initiatives for integrating settlement markets

The effectiveness of market infrastructures depends on smooth interaction between the different players along the value chain. This has been especially important during the financial crisis. The implementation of best practice, such as CSDs employing strict deliver-versus-payment/receive-versus-payment (DVP/RVP) settlement models, have contributed to effective risk mitigation. Both infrastructure providers and regulators have worked towards achieving this by making system changes and developing a supporting regulatory framework, such as the Settlement Finality Directive (SFD) in Europe.

Maintaining genuine competition between providers is necessary for long-term cost efficiency, innovation and cross-border reach. The right balance between private and public action is thus critically important for successfully integrating Europe’s securities systems. To benefit the market, monopoly infrastructures should serve a clear and limited purpose (such as eliminating foreign exchange risks). They should not become the norm, as they create the risk of “single point of failure” and diminish competition and choice. The ECB’s legal assessment (2008) makes clear that T2S is intended to protect the competitive market landscape as i) T2S does not imply that CSDs would be forced to use the platform and ii) its structure is decentralised, based on commercial relationships of national CSDs with their users.
5. T2S impact on the industry

5.1. Assumptions

While T2S is expected to be a catalyst for change in the post-trading industry, this might not happen in a “big bang”, but incrementally over several years. To analyse the impact of T2S, we need to make certain assumptions about the level of change we expect at the introduction of T2S in 2013. We have identified four areas that are relevant for the assessment:

- Degree of harmonisation
- Direct connectivity
- CSDs’ asset servicing capabilities
- End-investor behaviour

Along these dimensions, we assume the following scenario for 2013:

- Partial harmonisation regarding corporate actions on pending transactions has been achieved (market claims, transformations, buyer protection) but there are still some non-harmonised areas (tax, mandatory or voluntary corporate actions, etc.). T2S may also highlight additional areas that require harmonization (e.g. the way collateral can be mobilized for auto-collateralisation, liability and handling regimes for failed transactions and access requirements by CSDs)

- CSDs allow or support direct connectivity, so a single communication interface for instructing T2S-eligible securities may be possible

- However, using a single CSD for servicing all T2S-eligible securities may still be more expensive for foreign securities compared to the offering for domestic securities, and not all CSDs will be able to offer this (because the necessary cross-links etc. are not economically viable in all cases)

- A few large investors may wish to explore the possibility of building up their own (settlement) capabilities and connect directly to CSDs for this and would use agent banks for asset servicing, while others will continue to rely on their local agent or agent bank for the full spectrum of settlement and asset servicing activities
The impact assessment below is based on these assumptions. However, in the long run, we expect further developments in each of the areas:

- **Harmonisation:** the elimination of the Giovannini Barriers will see increasing progress in corporate action processing, harmonized market standards for voting and general meetings. However, tax-related harmonization will probably take the longest to achieve.

- **CSDs:** market infrastructures may increasingly gravitate to one of two business models. They will either become utility-type organisations, with standardised services, or make a significant investment in asset servicing capabilities and develop bespoke value-added service offerings for different clients.

- **Similarly to the clearing business,** where new CCPs have come into existence, it is conceivable that new CSDs will enter the market.

- **Direct connectivity and customer behaviour:** it may not be economically attractive for all market participants to build or continue to invest in direct connectivity. Instead, they may use the systems and support of larger organisations providing them with indirect access. This would further encourage the consolidation of service provider relationships to fewer organisations.

In the next chapter, we take a closer look at different players in the value chain and how T2S might impact their business strategy.

### 5.2. Challenges and opportunities for different industry participants

The economic impact of T2S on market participants varies with their “proximity” to settlement and clearing. In general, the costs will be borne by those who sell post-trade services and the benefits will be enjoyed by those who buy them.
CSDs will suffer the greatest loss. Because T2S will “commoditise” settlement – the main component of CSDs’ offering – it should result in margin compression and reduced revenues. Custodians will also be affected:

- Local custodians will face price pressure and may have to expand coverage to all T2S markets, which they may not yet cover.
- Global custodians might change their buying behaviour, preferring a multi-country sub-custodian that can cover all or many T2S countries.
- They will also have to evaluate the business case for establishing direct connectivity and local CSD accounts.

The main beneficiaries from T2S are consumers and intermediaries, as cross-border settlement becomes cheaper and Europe moves closer to financial integration.

The effects on industry participants are explored in further detail below.

5.2.1. CSDs

T2S will have the largest impact on CSDs, since it requires them to outsource securities settlement, one of their current core functions.

Outsourcing such an integral part of their systems landscape will require significant effort and costs for CSDs. While their settlement
engine will be replaced, there are many other services and systems CSDs will have to adapt (see illustration below). During a transition period, their process arrangements will need to deal with complex challenges, including:

- New, complex interfaces with T2S
- Maintenance of static data requirements
- Synchronisation with T2S lifecycle
- New interface to update accounts in real-time
- Functional adaptation of existing systems
- Adaptation of non-settlement functions
- Changes in internal, customer and third party processes

Exhibit 8: Illustrative overview of a CSD’s systems

On top of the transition costs, T2S will also have significant consequences for the revenues of CSDs. For settlement in T2S, the end-investor will always pay a combined charge: the Eurosystem’s fee for “lean” T2S settlement, and the CSD’s (add-on) charges for the

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9 There is actually a debate around whether CSDs can completely decommission their settlement systems. CSDs that offer multi-currency settlement or commercial bank money settlement probably still need to maintain their systems for these functions. Also, there are a lot of settlement-related services that CSDs will continue to provide, and these are often reflected in highly integrated systems. In order to completely outsource the parts done by T2S, these systems will need considerable re-shaping.
account and ancillary services. With T2S, CSDs’ add-on charges could become transparent and comparable. We expect this to increase price competition between CSDs.

We now turn to the ECB’s vision for local CSDs to offer their customers access to all T2S-eligible securities. What would need to happen to realise this vision?

One option is to build alliances between CSDs, similar to LinkUp Markets\(^\text{10}\), for the whole of Europe. Each CSD would need to have links to all other CSDs. This would require certain investments to achieve market coverage. Under this arrangement, in order to provide asset servicing, CSDs may also need to agree on cross-CSD corporate action support and make legal arrangements between each other.

Alternatively, CSDs could try to build local asset servicing capabilities to attract new clients. However, this would require a business case to:
- Build sufficient market coverage and operational expertise in the relevant T2S markets they wish to serve
- Build capabilities for asset servicing on a cross border basis
- Develop detailed knowledge of national tax legislation, reporting and regulations

It should be noted that not all CSDs are equally well positioned to become a hub for cross-border investments, because of differences in the size of outbound investment. There are also significant differences between the business models of CSDs. Some smaller CSDs generate the majority of their revenues from settlement, while others gain less than half of their revenues from settlement, having already started to provide other added-value services.

Over time, increasing harmonisation should make it easier for CSDs to provide cross-border asset servicing. However, most CSDs have only a limited track record in this area to date. Most would be unable to offer services, such as providing credit, for which they would need a banking licence (only two domestic CSDs in the EU have one). The provision of banking services by CSDs may also be constrained by a recent Council of Europe conclusion which emphasises that CSDs should concentrate on the management of operational risks and minimise liquidity and credit risks (Council of the European Union, 2008)\(^\text{11}\).

\(^\text{10}\) Also see above – LinkUp Markets is a joint venture by eight CSDs (Germany, Cyprus, Greece, Spain, Austria, Switzerland, Denmark and Norway) to establish a common infrastructure that absorbs differences in communication standards across the markets. It should also allow for easier implementation of links between CSDs, and more efficient asset servicing.

\(^\text{11}\) The Council of the European Union is the principal decision-making forum of the EU.
The Council “highlights the relevance of the current efforts to ensure that Central Securities Depositories (CSD) concentrate only on operational risks and minimise liquidity and credit risks; stresses the importance of promoting the use by CSDs of central bank money for the settlement of transactions, in line with the ESCB–CESR recommendations […]”

CSDs and ICSDs

The exchange of securities requires a specialised infrastructure. CSDs have been central to the post-trading landscape for over a century. As early as the 19th century, there was a need to have an institution to guarantee the authenticity of securities. The first CSD was founded in Austria in 1872 (“Wiener Giro- und Cassenverein”). Similar institutions were later established in Germany and other European countries, either on a regional or national level. At the time, securities trading and settlement were still paper-based. Nowadays, securities are usually immobilised or dematerialised: that is, they can be transferred via electronic book entry. However, this process has not diminished the importance of national infrastructures for securities markets.

In the 1960s, European companies started issuing Dollar-denominated bonds, so-called Eurobonds. Initially, these bonds were issued, traded and settled predominantly in New York. It was still a paper-based, manual process, and when trading volumes increased, a paperwork log jam developed, which left many investors unsatisfied. In 1967, Morgan Guaranty started to offer securities and cash accounts and used a book entry system for delivery and payment of these securities. In 1968, Euroclear was founded, and the market soon after shifted to Europe. In 1970 Cedel, a competitor, was established. In the 1980s, both ICSDs started to diversify into other internationally traded bonds and to improve their other capabilities, for example, in collateral management.

5.2.2. ICSDs

As mentioned above, ICSDs were founded in the context of the Eurobond market. Since this is basically a “stateless” market, settlement is in commercial bank money rather than central bank money. Their business model depends on having a large number of customers; most transactions can be internalised in their books allowing for settlement outside of the securities’ home market.

ICSDs are more like custodian banks than CSDs. They have banking licences and can provide securities lending. When T2S is implemented, ICSDs will not outsource settlement. Rather, they will connect to T2S like agent banks. This is because ICSDs settle securities transactions using commercial bank money, while T2S is being designed as a settlement system for central bank money only.

The impact of T2S on ICSDs must be assessed separately for the various parts of their business:

- Non-T2S-eligible securities:
  - No impact

- Eurobonds (theoretically T2S-eligible):
  - These have been declared out of scope, although they could be settled in central bank money as well
  - Impact will probably depend on:
    - Cost of T2S vs. ICSD settlement for end-investors
    - Interest and ability of ICSD clients to settle in central bank money as opposed to commercial bank money

- Other securities:
  - Impact will be comparable to that on a global custodian (see below)
  - T2S might be an opportunity for ICSDs to move into the asset servicing business, exploiting their already existing international network

ICSDs might thus pursue a dual strategy:

1. Continue to rely on their core business of Eurobonds settlement, securities lending and collateral management (in commercial bank money)

2. Expand their offering with regards to the settlement and servicing of T2S-eligible securities such as equities (in central bank money)

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**Different cash settlement models of CSDs**

Domestic CSDs in Europe usually settle transactions in central bank money (CeBM), i.e. using the payment facilities of the central bank (e.g. TARGET2). However, ICSDs, serving international markets, operate in commercial bank money (CoBM), for instance in order to allow for multi-currency settlement. Because CSDs have no credit exposure against the infrastructure entity in a CeBM money environment, the ESCB CESR (see 2) recommends using CeBM as the cash settlement asset. Otherwise, both assets are used interchangeably in the market.

There are different models in Europe with regards to CSDs connecting to the cash system of the central bank. In a so-called “interfaced model”, the settlement accounts for cash are located in the central bank’s system. For the so-called integrated model, the settlement accounts (cash) are held in the CSD. There are also hybrid models in use, with implications for how finality is achieved.
5.2.3. Local custodians

As mentioned above, local custodians’ business model will be strongly affected by T2S:

- Significant implementation costs
- Likely pressure on revenues
- In order to adapt to the new environment, new products and services must be developed
- Completion of market coverage might be necessary

Threats and opportunities for local custodians depend to some extent on CSDs’ future strategy with regards to asset servicing. As discussed above, full disintermediation of local custodians via a combination of direct connectivity and CSD links seems unlikely. However, T2S users might want to use direct connectivity to send settlement instructions directly to T2S, and might try to achieve various “degrees of independence”, settling trades themselves, but requiring their local custodian’s support with clearing, asset servicing, liquidity provision, funding services and ancillary services.

Custodians might have to move away from today’s “all-in” service model and fees towards more flexible models. This is likely to lead to pressure on profit margins and poses significant challenges for custodians’ current business models.
Today, many investors use a different local custodian for each country where they are active. There are single-country custodians that only offer one market (or very few), and multi-country custodians that have local subsidiaries or branches in a number of markets. With the introduction of T2S, investors will see Europe more as a single market, and single-country custody will be less in demand. Consolidation and M&A amongst local custodians is therefore widely expected. It is conceivable that only a few multi-country custodians will prevail.

### Relevance of T2S for developments outside Europe e.g. Asia

Europe’s T2S project has given new impetus to the discussions aimed at further developing the Asian markets. With a view to creating more efficient cross-border bond markets, a number of countries in the region have set up an initiative under the lead of the Asian Development Bank (ADB), a regional development institution focused on the developing countries in the Asian region. The so-called Group of Experts, a forum of public experts and market practitioners under the auspices of the Asian Development Bank (ADB), is tasked with analysing barriers to creating a more efficient cross-border bond market and proposing a road map to work towards their removal.

The proposal for a regional settlement intermediary (RSI) has been analysed and different options have been considered, including interlinking local CSDs or creating of a new pan-Asian infrastructure. Given the current low level of integration and need for further harmonisation of the region, a solution similar to T2S has been ruled out for now. However the pre-work done in the project has helped to analyse other options. International market players such as LinkUp Markets or Euroclear have presented the models they developed for T2S, suggesting that they could help to fulfil the needs of the ADB initiative in Asia as well. A decision on the way forward for this initiative is expected in early 2010.

### 5.2.4. Global custodians

As mentioned above, global custodians will have the option of connecting directly to T2S and might consider building their own capabilities in some areas. However, this depends on their characteristics and preferences, as discussed below.

The impact on this group needs to be analysed from two angles:

1. Impact on the products and services they buy
2. Impact on the products and services they sell
1. Today, global custodians usually access the local market through a local custodian, who acts as a conduit to:

- CSDs
- Registrars
- Information sources
- Issuer agents
- Tax authorities
- Local cash clearing/TARGET2
- Market counterparties

Under T2S, the main theoretical choices in terms of local market access in European countries are:

A. Traditional model, where all services are provided by agent bank

B. Use a local agent to perform all activities via the global custodian’s own CSD account

C. Use a local agent to perform asset servicing, but manage settlement independently

D. Access the local market without support of a local agent via own CSD account

The feasibility and appeal of these choices will depend on both CSDs’ and local agents’ service offering. The arrangement could be decided separately for each country, depending on the global custodian’s operating model etc. However, they will probably have a preference for using just one or two sub-custody providers for the whole T2S area.

Below we assess the likelihood of organisations implementing direct connectivity and building their own capabilities in certain areas:
### Exhibit 10: Criteria determining the likelihood to implement direct connectivity

<table>
<thead>
<tr>
<th>Type of institution</th>
<th>Costs</th>
<th>Benefits</th>
<th>Availability of collateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>The institution has to meet the CSD’s conditions for becoming a customer, e.g. only customers that are</td>
<td>Implementation costs</td>
<td>Settlement fees saved – strongly depends on volumes</td>
<td>T2S settlement is in central bank money, so the institution needs to be a Eurosystem-eligible counterparty in order to be able to access liquidity against central bank-eligible collateral</td>
</tr>
<tr>
<td>Credit or financial services institutions (with registered offices in the home market or abroad)</td>
<td>Running costs</td>
<td>Operational benefits, i.e. more flexibility</td>
<td></td>
</tr>
<tr>
<td>Public law entities with registered offices in the home market which provide comparable services</td>
<td>Both are difficult to estimate at this point</td>
<td>Potential for increased back office efficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T2S functional specifications are in early stages</td>
<td>Potential for reduced number of interfaces</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Also depends on existing internal set-up</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Deutsche Bank, Oliver Wyman

The clients served by global and local custodians tend to be very distinct, leading to different services being offered by the respective firms. Investors with a broad asset portfolio tend to appoint a global custodian, while local custodians are appointed for their expertise in a particular market only. Hence, asset managers or other corporate clients tend to be clients of global custodians, while local agents service the portfolios of these global firms in turn. While some custody banks combine local and global custody, building a local custody product would require new capabilities and operational structures for a global custodian and vice versa. Such a structural change thus raises strategic questions beyond the short-term business impact of T2S.

2. Global custodians provide worldwide market coverage for their customers, so T2S affects only part of their business. Like CSDs and local custodians, they might face some pressure on settlement fees, but this is a relatively small part of their revenues (also see 6.2).

Implementation costs will depend on the choice of set-up as discussed above: that is, on whether or not they choose direct connectivity or try to build their own capabilities.
5.2.5. Broker-dealers

Again, we split our analysis:

1. Impact on the products and services they buy
2. Impact on the products and services they sell

1. Broker-dealers must decide whether to access T2S via a local custodian or directly via local CSDs. (Again, this will determine implementation costs.) We should differentiate between two types of broker-dealer:
   - The capital markets division of an integrated investment bank, which is likely to use their in-house sub-custodian if available
   - An independent broker-dealer, which is more likely to consider the full breadth of choices

The arrival of advanced technology (smart-order routing, algorithmic trading) has created a new breed of flow-provider, such as high-frequency traders, which run their systems on the latest technology in accordance with their new business model. More traditional broker-dealers, however, rely on legacy technology platforms and hence face higher operational costs. Some larger independent broker-dealers may consider building out a self-clearing model in relation to T2S. This might be an option if they have the scale and trading volumes to warrant the set-up and running costs, and it they have the ability to finance their own transactions.

However, the costs of performing cross-border clearing and maintaining multiple clearing memberships are high and difficult to justify in the current economic environment. This is because a high percentage of operational activities (e.g. account opening, trade pre-matching, reconciliations or cash payments) are not core to a broker-dealer’s business. There is therefore a counter-trend to self-clearing, where specialised intermediaries help generate cost savings through automation, avoidance of fails and reduced funding costs. T2S, together with advances in electronic trading, will require a different path for broker-dealers: direct connectivity, together with account operator models, will allow broker-dealers to keep stricter control over settlement arrangements while benefiting from the economies of scale of partners that have made the investment in platform replacements.

2. In terms of the products and services broker-dealers provide, we consider:

A. Trading in equities and bonds:
Broker-dealers already cover most European countries, although some might specialise in local securities. If post-trade fees for cross-border securities decrease, the country focus might be broadened over time.

There is usually already an integrated, cross-country electronic platform for this.

B. Issuer services:

- There might be an opportunity to help issuers distribute their bonds and shares on a pan-European basis more effectively.

The fees charged by post-trade providers will be the main drivers of these developments. If many global custodians and broker-dealers decide to build their own capabilities, this will reverse the historic trend, where the industry tried to “industrialise” via outsourcing to specialist providers, such as the German “transaction banks”.

5.2.6. Prime brokers

As above, the assessment might be split into two categories: services bought and services sold. For the former, prime brokers will rely on their local or global custodian to adapt to T2S. For the latter, the impact on prime brokers’ core offering of added value services will be small. However, some prime brokers also have their own CSD connectivity and supporting in-house operations in selected markets, which they may leverage with respect to T2S.

5.2.7. Hedge funds, asset managers and institutional investors

This group uses prime brokers and global custodians for their post-trading needs, and we do not expect this to change. The investments of the market participants are already geographically diversified. Any residual biases towards their home countries are likely to diminish further.

5.2.8. Issuers

Non-financial companies’ business model, costs and revenues will not be significantly affected by T2S. However, there could be an impact on the issuing and distribution of bonds and shares. As cross-border securities become more accessible, there is an opportunity for companies to diversify their investor base geographically and to tap into liquid markets. However, while broadening the shareholder base
might have advantages from a capital raising point of view, there are concerns about the opacity of ownership structures if securities are held with different CSDs.

Another potential impact concerns the cost of corporate actions. The current proposal is to process corporate actions in T2S like other transactions (with a flag). However, at the moment CSDs process these events at low cost. Therefore, T2S could also affect the costs for corporate actions, even though it is a settlement platform. This is because it will increase messaging traffic between the various platforms and actors.

5.2.9. Retail and commercial banks

Again, we analyse the impact on this group from two angles:

1. Impact on the products and services they buy
2. Impact on the products and services they sell

1. In theory, retail and commercial banks face the same four set-up options under T2S as global custodians and broker-dealers. However, it is worth noting that retail banks differ in their custody requirements from broker-dealers and institutional investors: retail banks must be able to reflect granular account structures for a multitude of individuals.

In markets located in the Eurozone or other countries joining T2S, retail and commercial banks are likely to continue using their local CSD for domestic and foreign securities, where the respective CSD offers this. However, this requires certain capabilities in banks' back offices. Retail and commercial banks located outside the eurozone are likely to continue using a custodian. This may change over time, as retail customers become more active, thus giving banks greater scale.

Retail and commercial banks in a given country might also pool their resources into one company to increase scale. Such an institution would have the same set-up options as to a broker-dealer.

2. Retail and commercial banks' offer two kinds of product involving securities:
   - Investment products (i.e. fund products)
   - Direct trading products
The former already include a relatively high proportion of European securities, while the latter are more biased towards the national market. In direct trading, fees for accessing non-domestic markets may be higher than for domestic ones. If cross-border post-trade services become cheaper, this could change, and encourage investors to re-weight their portfolios towards securities from other European countries. Note, however, that due to the above-mentioned complex servicing needs, settlement costs are only one component of banks’ transaction costs.

5.2.10. Exchanges, MTFs and clearing houses

Initially, the impact of T2S on exchanges, MTFs and clearing houses will be indirect. T2S will further strengthen the trend towards a more pan-European offering. In the past, the clearing layer and trading layer were organised in national ‘silo’ structures. On the trading side, MiFID has fostered the development of Multilateral Trading Facilities (MTFs) as an alternative to traditional exchanges, thereby creating a more competitive environment (see 2).

On the clearing side, the Code of Conduct for Clearing and Settlement called for more interoperability between clearing houses. For market participants, being able to choose a clearing provider would lead to more efficiency (consolidation of transaction flows) and more competitive clearing charges.

If, in the long-run, the location of securities issuance, listing and holding becomes less relevant, this group of infrastructure providers will no longer have natural (national) monopolies but will increasingly have to compete with each other.

13 It should be noted that there are other reasons why individual investors might not trade foreign securities, e.g. cultural reasons, or because investors feel less informed about the underlying companies, macroeconomic environment etc. See European Financial Integration Report (EFIR), p.13
### Exhibit 11: Summary of impact on market participants

<table>
<thead>
<tr>
<th>Customers (with regards to securities products)</th>
<th>CSD</th>
<th>ICSD</th>
<th>Local custodian</th>
<th>Global custodian</th>
<th>Broker-dealer</th>
<th>Prime broker</th>
<th>Asset managers/ hedge funds</th>
<th>Corporates (issuers)</th>
<th>Retail banks</th>
<th>Exchanges/MTs/ clearing houses</th>
</tr>
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<tbody>
<tr>
<td>Custodians</td>
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<td>Global custodians</td>
<td>Global custodians</td>
<td>Broker-dealer</td>
<td>Prime broker</td>
<td>Asset managers/ hedge funds</td>
<td>Other banks</td>
<td>Institutional investors</td>
<td>Corporates</td>
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<td>Some large financial institutions</td>
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<td>Institutional investors</td>
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<td>Broker-dealer</td>
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<td>Global custodians</td>
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<td>Other banks</td>
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<td>Broker-dealer</td>
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<td>Private investors</td>
<td>Corporates</td>
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<td>Pension funds</td>
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<th>Tailored</th>
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<th>Custody</th>
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<th>Investment strategy</th>
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<td>Cash equities</td>
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<td>Securities lending</td>
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<td>Securities lending/ financing</td>
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<table>
<thead>
<tr>
<th>Expected strategic reaction to T2S</th>
<th>Two potential extremes:</th>
<th>Similar to global custodian</th>
<th>Two basic groups:</th>
<th>Product offering becomes more international (European)</th>
<th>More or less status quo</th>
<th>Investment strategy becomes even more international (European)</th>
<th>Expand shareholder base to other European countries (also SMEs)</th>
<th>Predominantly local product offering could become more European</th>
<th>More or less status quo (In the long run, more competition; a few pan-European players prevail)</th>
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<tbody>
<tr>
<td>Two potential extremes:</td>
<td>Added-value CSDs</td>
<td>Similar to global custodian</td>
<td>Two basic groups:</td>
<td>Product offering becomes more international (European)</td>
<td>More or less status quo</td>
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<td>More or less status quo (In the long run, more competition; a few pan-European players prevail)</td>
</tr>
<tr>
<td>Added-value CSDs</td>
<td>Utility CSDs</td>
<td></td>
<td>Two basic groups:</td>
<td>Product offering becomes more international (European)</td>
<td>More or less status quo</td>
<td>Investment strategy becomes even more international (European)</td>
<td>Expand shareholder base to other European countries (also SMEs)</td>
<td>Predominantly local product offering could become more European</td>
<td>More or less status quo (In the long run, more competition; a few pan-European players prevail)</td>
</tr>
</tbody>
</table>

| Overall impact on business model              | ![Impact.png](image.png) |

Source: Deutsche Bank, Oliver Wyman
6. Impact on the size of the market

6.1. Overall costs and benefits for the market

As part of the T2S feasibility assessment, the Eurosystem conducted an Economic Impact Analysis (ECB, 2008 A and B). The goal of the study was to assess whether the overall impact on the market would be positive, based on estimated costs and benefits (savings) for the market.

Three main benefits were analysed:
- Reduced settlement fees
- Back office savings
- Collateral savings

Two main costs were considered:
- T2S development and running costs
- Participants’ implementation costs

We start with settlement fees. The ECB’s study compared current settlement fees charged by CSDs to potential settlement fees under T2S.14 The Eurosystem will charge its users at cost, so the price depends on two variables:
- The cost of developing and running T2S
- The number of trades settled in T2S

The Eurosystem estimates the following costs:
- EUR 203 MM for the complete development phase (years 2008-13)
- Between EUR 79 MM and EUR 104 MM annual maintenance and running costs, depending on volumes.

The report assumes that “CSDs stop investing in the settlement function as soon as the Governing Council decides to implement T2S […], or invest only in relatively small projects which can be recovered before T2S opens […]. Moreover, they “reshape” their infrastructure

14 Since it would be very difficult to estimate settlement fees in 2013, the study compared actual 2007 settlement fees to T2S settlement fees as if the project had finished in 2007
completely as soon as T2S opens, adapt to the maximum to T2S, closing all parts which are no longer needed with T2S. In particular, the CSDs do not replicate any T2S processes or data in their systems. They do not maintain national specificities and they do not offer matching facilities."

The Eurosystem analysed the following volume scenarios:

- Scenario 1: All 345 MM transactions settled by euro area CSDs in 2007 (in central bank money) are processed by T2S
- Scenario 2: Non-euro, local currencies of EU member states are included, so the number of settlement instructions in 2007 increases to 640 MM
- Scenario 3: T2S processes only 50% of euro traffic (172 MM settlement instructions).

The Eurosystem estimates that average fees per instruction charged by CSDs in 2007 were 73 cents in Scenario 1 and 62 cents in Scenario 2. The average T2S fee if it had started to operate in 2007 ranges between 32 cents and 57 cents. In addition to this fee, CSDs will also charge a fee for processing the transaction, which has been estimated as between 7 and 24 cents. The table below gives an overview.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Actual fees in 2007</th>
<th>Estimated T2S fees in 2007</th>
<th>Est. T2S fees in 2007 incl. CSD add-on</th>
<th>Savings on CSD level (EUR MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>73 cents</td>
<td>32 cents</td>
<td>39-57 cents</td>
<td>56-118</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>62 cents</td>
<td>21 cents</td>
<td>26-44 cents</td>
<td>113-228</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>73 cents (est.)</td>
<td>57 cents</td>
<td>64-81 cents</td>
<td>(14)-17</td>
</tr>
</tbody>
</table>

Source: ECB (2008 B), T2S Economic Impact Analysis

Banks were asked to estimate the benefits of T2S from back office and collateral savings, as well as the required investment costs. This was a challenging task; for various reasons, some institutions could not provide quantitative estimates. Nevertheless, based on the available data, the ECB expects savings and investments as follows, resulting in a positive net benefit:

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15 Measuring and comparing the cost of settlement across countries is not a trivial task. The end-to-end settlement process includes many steps, from communication to cash settlement, which are sometimes charged for separately and sometimes bundled together. Amongst other things, there are also volume discounts applied per customer that are not publicly known, which make it difficult to determine an average price.

16 This consists of two components: a 2-3 cents help desk charge, and the amortisation of investment costs.

17 Scenario 3 is assumed to be 50% of benefits in scenario 1.
Exhibit 13: Benefits for banks as a result of T2S

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Back office savings (MM)</th>
<th>Collateral savings (MM)</th>
<th>Amortisation of investment costs (MM)</th>
<th>Net benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>48</td>
<td>53</td>
<td>13</td>
<td>89</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>58</td>
<td>68</td>
<td>16</td>
<td>110</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>24</td>
<td>27</td>
<td>7</td>
<td>44</td>
</tr>
</tbody>
</table>

Source: ECB (2008 B), T2S Economic Impact Analysis

The combined savings for CSDs and banks would result in positive annual net benefits between EUR30MM and EUR338MM, depending on volumes and CSD add-on costs.

Exhibit 14: Summary of benefit analysis (CSDs and banks)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Benefits p.a. (MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>145-207</td>
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<tr>
<td>Scenario 2</td>
<td>223-338</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>30-61</td>
</tr>
</tbody>
</table>

Source: ECB (2008 B), T2S Economic Impact Analysis

The analysis concluded that, even in the worst case scenario, T2S would have a positive economic impact. However, a project of this scale and complexity naturally faces many uncertainties regarding cost and timelines.

For instance, as pointed out above, the analysis assumes that CSDs stop investing in the settlement function and do not replicate any T2S processes or data. However, this is a subject of continued debate, with CSDs arguing that they might need to maintain local databases in order to continue offering high service levels and the possibility for customers to communicate with the CSD in real time. This is because T2S is a “lean” system, while some CSDs are providing “real-time integrated services on complex instruments, including such functions as customer reporting, transaction management, notification of corporate events, elections on voluntary and optional corporate events, projections of liquidity requirements, lending and borrowing and collateral management and registration services” (Euroclear, 2008).

The ECB looks at T2S from an “aggregate welfare” point of view; in the next section, we try to assess costs and benefits for CSDs and custodians specifically.
6.2. Safekeeping and settlement revenues

While the overall impact of T2S on the market might be positive, the costs and benefits will not be distributed equally. End-investors are likely to profit from lower securities settlement fees, while the providers of such services will feel the squeeze on profit margins and net revenues. This, in turn, will encourage consolidation aimed at achieving greater scale. Below we give an overview of the current securities servicing market size and the likely impact of T2S.

There are no official figures on the size of the European securities custody market. Estimating its size is made difficult by the multi-tiered market structure and the fact that most banks do not report separate (granular) data for their custody businesses. Securities could be counted at the global custodian level, the sub-custodian level or at the level of the CSD. Market size might be expressed in terms of the value of assets under custody or revenues from custody services. The scope of services could vary from “core” custody services (settlement and safekeeping) to the full range of services, including, for example securities lending. (ECB, 2007)

Below we estimate the size of the market in terms of revenue from asset servicing and settlement respectively, on the basis of the ECB statistics, BIS data and stock market capitalisations. The starting point is assets under custody (AuC) at national CSDs:

**Exhibit 15: Assets under custody at local CSDs 2007**

![Pie chart](chart.png)

Source: Deutsche Bank, Oliver Wyman

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18 Please note that consistent data was not available for all countries that have signed the MoU hence the market assessment is based on a sub-set of potential T2S markets (although covering a high percentage in terms of asset volume and transactions).
On the basis of this, we estimate the market for custody services in terms of revenues on three levels of intermediation:

1. CSDs
2. Local custodians
3. Other intermediaries (e.g. global custodians, ICSDs)

We estimate that the total custody revenue pool in Europe in 2007 was EUR 6.2 BN.\textsuperscript{19} To gauge the impact of T2S, we distinguish between revenue from asset servicing and revenue from settlement services.

Exhibit 16: Custody revenues in 2007

\begin{figure}
\centering
\includegraphics[width=\textwidth]{custody_revenues.png}
\caption{Custody revenues in 2007}
\end{figure}

Source: Deutsche Bank, Oliver Wyman

\textsuperscript{19} Our analysis uses fee estimates recently published by Oxera (2009)
Quantifying the revenue impact of T2S in 2013 with accuracy at this point in time is challenging because:

- Details of T2S are work in progress
  - Pricing
  - Implementation costs
- Investor behaviour (e.g. level of cross-border investment) is difficult to predict:
  - Investors’ reaction partly depends on the above-mentioned parameters that are still under discussion (e.g. implementation costs)
  - There are no similar events that could be used as “benchmarks” to predict the effect of lower costs on cross-border investment (also see 6.3)
  - Behaviour also depends on “soft” factors (e.g. cultural – see 6.3)
- Asset values and trade volumes have been very volatile as a consequence of the crisis, so estimating future market size also relies on assumptions regarding the depth of the crisis, when recovery will begin and how fast it will be

Due to the financial crisis, share values almost halved across Europe in 2008. Most analysts now predict overall positive growth for 2009 and somewhat stronger growth for 2010. While the occurrence of a “double dip” recession cannot be ruled out yet, the consensus at the moment seems to be for a relatively positive scenario for securities. Beyond 2010, we assume a return to a long-run average growth rate around 7%. On the debt side, the overall value of bonds outstanding in Europe has not been diminished by the crisis, and positive growth can be expected over the coming years due to rising government deficits.

Our scenario results in total AuC at CSDs of EUR 26.8TR in 2013, which is somewhat higher than before the financial crisis.

Custody revenues will be affected in two ways:

- Total settlement revenue will remain stable due to two developments:
  - Lower settlement fees charged by T2S
  - Potentially pressure for further price reductions from ECB and customers on the basis of increased back office efficiency
Total asset servicing revenues could increase significantly:

- Price competition may increase if CSDs decide to move into this area
- But an increase in cross-border investment may compensate for lost revenues from price competition

As a result, asset servicing revenues in 2013 would rise to approximately EUR 5.3BN and settlement revenue would stay constant at EUR 1.9BN:

**Exhibit 17: Custody revenues in 2013**

![Asset servicing revenues 2013](chart1.png)

**Settlement revenues 2013**

![Settlement revenues 2013](chart2.png)

Source: Deutsche Bank, Oliver Wyman
On the settlement side, this is in line with savings calculated by the ECB because a much higher volume would be processed at lower average costs. (However, it should be noted that our analysis does not take into account the effort and investments that are necessary for market participants to prepare for T2S.)

At first sight, the 2013 diagrams do not look very different from the 2007 diagrams. However, there will be shifts within and between the three industry groups:

- **CSDs**
  - An initial reduction in revenues
  - However, as discussed above, if CSDs move into the asset servicing space, they might be able to recoup revenues. This would mean a shift of revenue from agent banks to CSDs

- **Local custodians**
  - A reduction in settlement revenue
  - However, due to increased cross-border investment, asset servicing revenues might balance the effect on overall revenues
  - There might also be a reallocation of revenue within the local custodian segment, as single-country custodians are crowded out and a few multi-country custodians prevail. These will have to compete for the largest customers with innovative products

- **Other intermediaries**
  - Settlement revenue is likely to increase
  - Asset servicing revenue might increase due to a higher level of cross-border investment in Europe

### 6.3. Impact on cross-border investment in Europe

The percentage of cross-border investments in Europe has already increased during recent years, constituting over a third in 2007. However, there are large differences between countries (see exhibit 18).

As mentioned above, one consequence of T2S could be an increase in the level of cross-border investment within the Euro area, which would enlarge the market custodians operate in. This is because most foreign investors rely on a sub-custodian, especially for asset servicing. (Only the largest foreign investors might start building a direct relationship with local CSDs.)
While the effects of T2S are difficult to predict, finance theory and some empirical evidence are useful. If investors followed finance theory perfectly, they would have globally diversified investment portfolios in order to minimise risk and for any given level of expected return. However, most investors have a “home bias”: that is, they invest disproportionately in their home country's securities. Schoenmaker and Bosch (2007) measure this bias as the difference between the relative weight of domestic securities in the portfolio of country $i$ and the relative weight of country $i$ in the total world market portfolio. The smaller the bias towards domestically issued securities, the closer the number is to zero.
Before the introduction of the Euro, there were two main barriers to cross-border investment in Europe:

- Exchange rate risk
- Costs of cross-border trading/clearing/settlement.

The above-mentioned study looked at the effect of eliminating exchange rate risk through the introduction of the Euro. They found that within the European Monetary Union (EMU), the home bias decreased by 9% between 1997 and 2004, whereas it only decreased by 5% in non-EMU countries.  

The question is how the decreased cost of cross-border investment (caused by T2S) will further reduce the home bias, and over what time period. Comparisons with other countries are difficult, as Europe’s monetary union is unique.

Furthermore, within Europe, countries have different potential for cross-border investment based on a number of factors:

- Export to GDP ratio: Countries with a high ratio are more open and less biased
- Size of the institutional sector: A relatively large institutional sector increases international diversification
- Relative size of domestic stock market: Investors in a country with a relatively well developed stock market are more likely to invest in their home country

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20 The authors mention that this decline is also due to the emergence of institutional investors, such as pension funds, diversifying their portfolios in a sophisticated manner
7. Summary and conclusions

The introduction of T2S, a pan-European securities settlement platform, represents a significant market change for the asset servicing industry. Although the scope of the platform is limited to securities settlement, it has repercussions for all participants in the post-trading industry and their customers.

With regards to suppliers of asset servicing, T2S will have the greatest effect on CSDs and local custodians, who will have to adapt their business models. Our report also highlights potential changes to the competitive landscape, and the expected shifts in revenue between different players. Although T2S is only expected to go live in 2013, asset servicing providers must refine their strategy now, if only so they can secure the necessary internal resources. At a time where most organisations are still grappling with the consequences of the financial crisis, this might be a challenge. Multi-market providers may find it easier to justify the costs of developing the solution to meet their clients’ needs in a T2S environment. This would increase the pressure for consolidation.

T2S will deliver a dynamic service after it has gone live. The first T2S release has been “frozen” for now, which means that all future requests to enhance or change the platform will be realised only for a later release of T2S. Hence, market participants need to plan for ongoing resource requirements, and stand ready to adopt any required changes. Such alterations to the T2S platform will probably require multiple adjustments in the downstream systems – adapting to “harmonised” market rules being an obvious example.

We hope this report will provide market participants with a useful starting point for their own impact assessments. Financial intermediaries, such as global custodians or broker-dealers, will want to discuss their requirements with different service providers. At this stage, the development of new products and services is still a two-way process between providers and customers.
Local agents will need to secure budgets and build out their service offering to give asset servicing customers the flexibility in service delivery that T2S could bring. Customers should start to formulate their potential service requirements in a T2S environment to help their providers to make the necessary changes and plan the evolution of their service relationships. Network management functions must devote resources to re-aligning their systems before T2S is in operation. Otherwise, they may find themselves trying to manage an external market change and a service provider change simultaneously.
## 8. Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>AG</td>
<td>Advisory Group – Advisory body that reports directly to the ECB’s decision-making bodies on the T2S project</td>
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<td>CCBM2</td>
<td>Project to review Correspondent Central Banking Model and to develop a single platform, allowing the Eurosystem to manage collateral for domestic and cross-border operations, based on the existing systems</td>
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<tr>
<td>CCP</td>
<td>Central counterparty – In order to reduce risk, the CCP becomes a party to every trade in a certain market, acting as buyer to every seller, and seller to every buyer (usually there is one CCP per country)</td>
</tr>
<tr>
<td>Clearing</td>
<td>Takes place after the trade, before settlement; includes making sure both parties have agreed to the same terms and often also includes reporting and monitoring risk management; clearing house is often also the CCP</td>
</tr>
<tr>
<td>Code of Conduct</td>
<td>Code of Conduct for Clearing and Settlement (CoC) – Voluntary commitment by the industry in 2006 to work towards price transparency, interoperability and service unbundling</td>
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<tr>
<td>CSD</td>
<td>Central Securities Depository – Central organisation (usually one per country), holding securities to enable book entry transfer</td>
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<tr>
<td>Direct connectivity</td>
<td>Technical facility allowing T2S parties to access T2S and use its securities settlement services without the need for a CSD to act as a technical interface</td>
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<td>ESCB-CESR</td>
<td>European System of Central Banks/Committee of European Securities Regulators – Working group to develop recommendations for common standards in securities settlement and clearing throughout Europe</td>
</tr>
<tr>
<td>Giovannini Barriers</td>
<td>Technical, tax and legal obstacles to integration in the post-trading sector, identified by the so-called “Giovannini Reports”, published in 2001 and 2003</td>
</tr>
<tr>
<td>LCMM</td>
<td>Life Cycle Management and Matching – LCMM manages the life cycle of settlement instructions in T2S</td>
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<tr>
<td>MiFID</td>
<td>Markets in Financial Instruments Directive – Law providing harmonised regulatory regime for investment services across the 30 European Economic Area countries; introduced to increase competition and consumer protection</td>
</tr>
<tr>
<td>NUG</td>
<td>National User Group – Link between AG and providers and users of securities settlement services within national markets; participants assess the impact of T2S functionality in their respective country</td>
</tr>
<tr>
<td>SEPA</td>
<td>Single Euro Payments Area – Project to remove the technical, legal and commercial barriers to cashless payments in the euro area</td>
</tr>
<tr>
<td>Settlement</td>
<td>Delivery of securities from one party to another; usually against payment, but sometimes without (e.g. delivery of securities collateral against a loan, or delivery made pursuant to a margin call)</td>
</tr>
<tr>
<td>TARGET2</td>
<td>TARGET2 is the Eurosystem’s real-time gross settlement system, used for the settlement of central bank operations, large-value euro interbank transfers as well as other euro payments (launched in 2007; successor to “TARGET”, 1999)</td>
</tr>
<tr>
<td>URD</td>
<td>User Requirements Document: The result of a collaboration between experts from CSDs, banks and central banks, to define the features required by CSDs and market participants for T2S</td>
</tr>
</tbody>
</table>
9. References

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