



# Disclosure report

## TARGET2 assessment against the principles for financial market infrastructures

June 2016

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## 1 Executive summary

TARGET2 is the real-time gross settlement (RTGS) system operated by the Eurosystem. TARGET2 settles euro-denominated payments on an individual basis, in real time and in central bank money with immediate finality. The system connects around 1,000 direct participants from EEA countries and around 55,000 addressable banks worldwide. With approximately €1.8 trillion and 344,000 transactions settled every day, TARGET2 is one of the three largest wholesale payment systems in the world.

TARGET2 is legally structured as a multiplicity of systems where each central bank owns its TARGET2 component and operates it under the law of its Member State. All Eurosystem central banks and their banking communities are connected to TARGET2. Other EU national central banks may join TARGET2 on a voluntary basis. The management of TARGET2 is based on a three-level governance scheme: i) the Governing Council, which is responsible for the general management, ii) the individual Eurosystem central banks, which run the system, and iii) the 3CB (i.e. the Deutsche Bundesbank, the Banque de France and the Banca d'Italia), which provide and technically operate the platform.

TARGET2 also provides its participants with a range of specific services for the settlement of securities-related transactions stemming from T2S by means of dedicated cash accounts (DCAs). While DCAs opened in the books of central banks are legally part of TARGET2, the corresponding services are technically provided from the T2S platform of the Eurosystem.

The main risks to which TARGET2 is exposed are legal, credit, liquidity<sup>1</sup>, operational/information security, custody and general business risks. For credit and custody risks, the operator applies Eurosystem risk management frameworks, which are primarily set for monetary policy operations. The operator therefore has no influence on these frameworks. The other risks are all managed through different frameworks, which were developed by the operator in the specific context of TARGET2 and are aimed at identifying, measuring, monitoring and mitigating these risks.

Extensive documentation on TARGET2 has been publicly available on the websites of the ECB and the national central banks since before the system went live in 2007. These include the legal documentation in the form of the Guideline on TARGET2, which includes the terms and conditions under which participants may join TARGET2, and the pricing structure. In addition, detailed technical documentation is made available in the form of the "User Detailed Functional Specifications" (UDFS), as well as a user guide.

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<sup>1</sup> As a central-bank-owned financial market infrastructure, TARGET2 is not itself subject to liquidity risk. References to liquidity risk should be understood to mean the liquidity risk to which its participants are exposed.

## 2 Summary of major changes since the last update of the disclosure

This is the first time that TARGET2 has been assessed against the SIPS Regulation<sup>2</sup>. Previously, TARGET2 had only been assessed against the “Core Principles for Systemically Important Payment Systems” and “Business Continuity Oversight Expectations”. The last fully fledged assessment was carried out shortly before TARGET2 was launched in 2007.

Since then TARGET2 has regularly been enhanced through early technical and functional releases. The TARGET2 yearly releases allow identified gaps to be filled and the efficiency of the system to be improved. Of the modifications made since

2007, the most significant are the development of internet-based access to TARGET2 and the implementation of a contingency network independent from SWIFT. More recently TARGET2 underwent a number of functional, legal and operational changes in order to adapt to TARGET2-Securities (T2S), which went live in June 2015. The cash services provided in the context of T2S rely on dedicated cash accounts (DCAs) and on a liquidity bridge between the TARGET2 platform and the T2S platform where the DCAs are technically held.

This summary is an accurate reflection of the assessment of TARGET2 against the SIPS Regulation as of 1 April 2016.

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<sup>2</sup> Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28)

## 3 General background information on TARGET2

### 3.1 General description of TARGET2 and the markets it serves

#### TARGET2

TARGET2 is the real-time gross settlement (RTGS) system operated by the Eurosystem and settling in euro. Settlement of payments takes place continuously in real time, and each transfer is settled individually (gross settlement). TARGET2 enables transactions to be settled in central bank money and with immediate finality, and offers the highest standards of reliability and resilience.

#### Transactions

The payments settled via TARGET2 are mainly refinancing operations with the central bank, transactions between credit institutions and the settlement of other financial market infrastructures including central securities depositories that have migrated to TARGET2-Securities (T2S). TARGET2 settles both interbank and customer payments, without any upper or lower transaction value limit. Providing payment services to its customers, TARGET2 plays a key role in ensuring the smooth conduct of monetary policy, the correct functioning of financial markets, and banking and financial stability in the euro area by substantially reducing systemic risk.

#### Participation

All Eurosystem central banks and their banking communities are connected to TARGET2. Other EU national central banks may join TARGET2 if they wish.

The system can be accessed through different channels, depending on the client's needs. These include direct and indirect participation, addressable BICs and multi-addressee access. Direct participants hold an account in the Payments Module (PM) of the single shared platform (SSP) of TARGET2 and/or a dedicated cash account on the T2S platform. Access to real-time information and control features is provided by the Information and Control Module of TARGET2 (for PM accounts) and by the T2S Graphical User Interface (for DCAs). Indirect participants settle their payments via a direct participant, in the direct participant's PM account on the SSP. Credit institutions can be connected to TARGET2 (as either direct or indirect participants) provided they are established in the European Economic Area (EEA) and are subject to supervision by a competent authority. Addressable BICs are direct participants' correspondents or branches and, as with indirect participants, they send and receive payment orders to/from the system via a direct participant. Their payments are

settled in the account of the direct participant on the SSP. Indirect participants and addressable BICs are listed in the TARGET2 directory.

In addition to the above types of participation, TARGET2 also offers settlement services to more than 80 market infrastructures, which include other payment systems, clearing houses, securities settlement systems and central counterparties.

### Key indicators

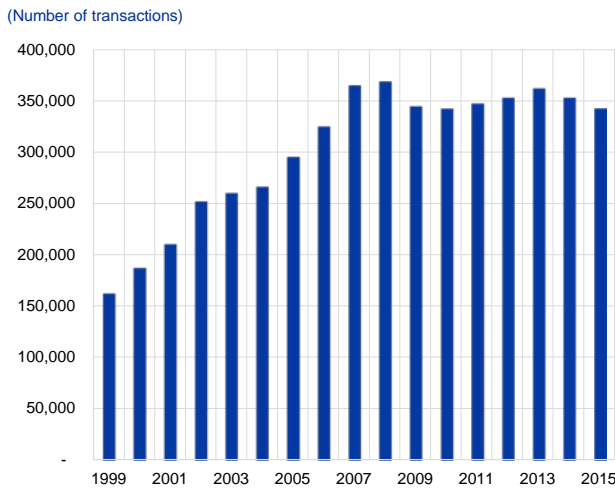
Overall, TARGET2 is accessible to a large number of participants from 24 EU countries. At the end of 2015, TARGET2 was being used by over 1,000 banks (direct participants) to initiate payments on their own or their customers' behalf. As such, once the branches of direct and indirect participants are taken into account, more than 55,000 credit institutions around the world were accessible via TARGET2.

With an average of €1.8 trillion and 344,000 transactions settled every day in 2015, TARGET2 is one of the three largest wholesale payment systems in the world.

Following the sharp decrease in 2008 resulting from the breakdown of the interbank markets after the Lehman insolvency, both values and volumes settled using the TARGET2 system have remained relatively stable. The same pattern has been observed in major large-value payment systems worldwide.

**Chart 1**

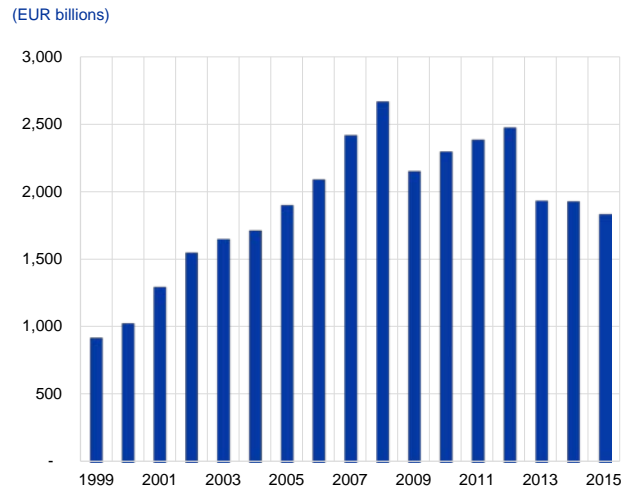
Daily average TARGET volumes



Sources: ECB

**Chart 2**

Daily average TARGET value



Sources: ECB

## 3.2 General organisation of TARGET2

The management of TARGET2 is based on a three-level governance scheme. The tasks are assigned to the Governing Council of the ECB (Level 1), the individual Eurosystem central banks (Level 2) and the central banks providing the SSP (known

as the 3CB: the Deutsche Bundesbank, the Banque de France and the Banca d'Italia – Level 3).

The Governing Council is responsible for the general management of TARGET2, while the system itself is run by the individual Eurosystem central banks, which are assigned the tasks relating to the business relationship with users and the business development of TARGET2. The 3CB provide and technically operate the SSP on the basis of a predefined service level agreement.

For the DCAs, each individual central bank in TARGET2 has accepted the outsourcing of the DCA services on the T2S platform to the Eurosystem. The T2S platform is provided and operated by the 4CB (the Deutsche Bundesbank, the Banco de España, the Banque de France and the Banca d'Italia) on behalf of the Eurosystem.

### 3.3 Legal and regulatory framework

Although TARGET2 operates on a single technical platform, it is legally structured as a multiplicity of systems. Each individual central bank participating in TARGET2 owns its TARGET2 component and operates it under the law of its Member State. The TARGET2 components of individual central banks encompass the PM accounts as well as the DCAs opened in their books. The ECB also owns its own component and operates it under German law. Each TARGET2 component is designated under the relevant national legislation implementing the Settlement Finality Directive 98/26/EC.

### 3.4 System design and operations

TARGET2 is based on a technically centralised platform, the single shared platform (SSP), and all participants, irrespective of their location, have access to the same services, functionalities and interfaces. The SSP of TARGET2 is set up using a modular approach. Each module in the SSP has a specific function, e.g. the Payments Module for the processing of payments or the Ancillary System Interface (ASI), which offers services tailored to other market infrastructures. DCA services are provided from the T2S platform operated by the 4CB on behalf of the Eurosystem.

Communication between the TARGET2 system and its participants is harmonised and based on the SWIFT standards and services; alternatively, low-volume participants can use a specifically developed form of internet-based access. Participants with DCAs interact with the platform via one of the two value-added network providers using ISO 20022 standards.

TARGET2 is open from 07:00 to 18:00 CET on each of its working days, with a cut-off time of 17:00 CET for customer payments. Furthermore, TARGET2 starts the new business day on the evening of the previous calendar day. The night-time window is available from 19:30 to 07:00 CET the next day, with a technical maintenance period of three hours between 22:00 and 01:00 CET.

The night-time window facilitates the night-time settlement of the different market infrastructures in central bank money with finality, and also supports cross-system settlement during the night. However, bank-to-bank payments are not allowed during the night-time window.

TARGET2 offers the highest possible level of reliability and resilience, as well as sophisticated business contingency arrangements commensurate with the systemic importance of the TARGET2 infrastructure. The business continuity concept of TARGET2 consists of a two-region/four-site architecture. There are two regions for payment processing and accounting services, and each region has two separate sites. Regular region rotations are applied, thus ensuring full readiness and preparation in both regions in case of any event. This architecture enables TARGET2 to fulfil the highest service level, minimise operational risk and avoid systemic risk.



## 4 Principle-by-principle summary narrative disclosure

This section provides a summary narrative disclosure for each applicable principle to enable readers to understand the approach adopted by the TARGET2 operator to observing the principle. The summary provided for each principle shall be seen as a complement to what has already been made publicly available on the ECB's and central banks' websites since the launch of TARGET2.

### Principle 1 Legal basis

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An FMI should have a well-founded, clear, transparent and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

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Although technically TARGET2 runs on a single platform, legally it is constructed as a “system of systems”. Each participating central bank has its own TARGET2 system, set up under national law and designated under the Settlement Finality Directive, and participants participate in TARGET2 via their own national central bank. To ensure that participants can expect consistent treatment and the same high degree of certainty of settlement in each country, an ECB Guideline, the TARGET2 Guideline<sup>33</sup>, binding on each participating central bank, is in place.

The TARGET2 Guideline sets out the conditions under which central banks operate their TARGET2 component system and includes “Harmonised Conditions for Participation in TARGET2” which, as the name suggests, set out the rules of participation in each country's TARGET2 component. These rules may be applied by contract or directive, depending on the jurisdiction; however, their consistent implementation in each jurisdiction is monitored by the ECB.

The TARGET2 Guideline, which is available on the ECB's website in each national language, clearly sets out the moments of entry and finality for payments in TARGET2 as well as events of default and how these are treated by the systems and their operators in each country. It is regularly reviewed by the central banks to take into account technical or legislative changes, and the central banks also collect feedback from participants, which is taken into account in any updates.

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<sup>33</sup> Guideline ECB/2012/27 of 5 December 2012 on a Trans-European Automated Real-time Gross Settlement Express Transfer System.

## Principle 2

### Governance

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An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI and support the stability of the broader financial system, other relevant public interest considerations and the objectives of relevant stakeholders.

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TARGET2 was established to meet the Eurosystem's obligations under the Treaty on the Functioning of the European Union, namely i) supporting the implementation of the Eurosystem's monetary policy and the functioning of the euro money market; ii) minimising systemic risk in the payments market; and iii) increasing the efficiency of cross-border payments in euro.

There are three separate levels of governance for TARGET2:

- Level 1 (the Governing Council of the ECB) has the ultimate responsibility for TARGET2 and safeguards its public function. The Governing Council is responsible for the direction, management and control of TARGET2. The Governing Council has established a committee to assist as an advisory body in all matters relating to Level 1 of TARGET2.
- Level 2 (Eurosystem central banks) has subsidiary competence for TARGET2 and is responsible for tasks assigned to it by Level 1. The Market Infrastructure Board, a committee established by the Governing Council, carries out the tasks assigned to Level 2.
- Level 3 (SSP-providing central banks) builds and operates the SSP for the Eurosystem.

The Governing Council is established under the terms of the Treaty, which also determines its composition. Its members are appointed by the European Council (for ECB Executive Board members) and by the Member States (for governors of the Eurosystem's national central banks).

TARGET2 is also subject to audit by the Eurosystem's Internal Audit Committee and may in addition be audited by external auditors. Auditors report directly to the Governing Council. Furthermore, the Governing Council is also responsible for the oversight of TARGET2 and has established a committee to assist it in this task. The oversight function is segregated from the TARGET2 operational function both at committee level and within the national central banks.

Any major decisions on the functioning or structure of TARGET2 are made by the Governing Council. Its decisions are based on input from Level 2, which also consults the TARGET2 participants at both national and European level and consider their views.

### Principle 3

#### Framework for the comprehensive management of risks

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An FMI should have a sound risk management framework for comprehensively managing legal, credit, liquidity, operational and other risks.

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Level 2 is responsible for risk management and has put a detailed framework in place across the Eurosystem for this purpose. The framework encompasses the different risks to which the system is directly exposed, i.e. operational and information security, legal and general business risk. The framework is based on ISO/IEC standard 27002.

Level 2 reports back to the Governing Council on a regular basis to inform it of the system's status, both relative to the performance objectives and from a risk management perspective. In addition to the regular reporting, any significant risks to TARGET2 that are detected must be reported immediately to the Governing Council.

Participants are also required by the terms of their participation to have security procedures in place, in particular with regard to information security. The Eurosystem also imposes additional requirements on those participants that, in view of their size, are regarded as critical.

Legal risk is managed by reviewing all legal arrangements and contracts by lawyers from each national central bank. This ensures that risks of conflicts of law are minimised, and also that the legal arrangements are in line with national legislation in each country.

At operational level, detailed plans are in place for dealing with emergencies or system problems, and there are back-up systems at various widely dispersed geographical locations. These plans and procedures are regularly tested.

### Principle 4

#### Credit risk

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An FMI should effectively measure, monitor and manage its credit exposure to participants and those arising from its payment, clearing and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence.

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The TARGET2 operator provides liquidity to its participants in the form of intraday credit or auto-collateralisation, both of which must be reimbursed before the end of the day. If a participant is unable to reimburse its credit at the end of the day, this is deemed a request for recourse to the overnight lending facility and is subject to the relevant terms and conditions. Participants that are not monetary policy counterparties are subject to punitive interest rates.

The management of the associated credit risk follows the framework for Eurosystem monetary policy operations as reflected in the General documentation on Eurosystem monetary policy instruments and procedures (General Documentation). This framework lays out the conditions under which credit can be granted and the collateral which may be accepted, as well as the relevant haircuts, etc.

This framework is not a TARGET2-specific framework, but rather the framework primarily applied for monetary policy operations. For that reason it is outside the operator's remit. As such, the TARGET2 operator is not exposed to credit risk. Only central banks – in their task of implementing the monetary policy of the euro area – are exposed to credit risk.

## Principle 5

### Collateral

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An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

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The operator of TARGET2 takes collateral for the provision of intraday liquidity to its participants, in the form of either intraday credit or auto-collateralisation. The collateral framework applied is exclusively based on the framework for Eurosystem monetary policy operations and is set out in the General documentation on Eurosystem monetary policy instruments and procedures (General Documentation).

For certain assets, the eligibility rules are complemented by restrictions on their use. These restrictions are needed to prevent a counterparty from using an asset as collateral when its value is likely to decrease dramatically precisely in the event of the counterparty's default. These restrictions apply to all assets issued by financial institutions or closely linked entities.

The ESCB also provides a tool, the correspondent central banking model (CCBM), to enable counterparties to use collateral located in another EU country, in which case the central bank in the country of the collateral holds the assets for the duration of the credit.

## Principle 7

### Liquidity risk

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An FMI should effectively measure, monitor and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

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Because TARGET2 is a real-time, gross-settlement (RTGS) system, all transactions are made from existing funds and are settled on an individual basis with immediate irrevocability and finality. The operator of TARGET2 therefore faces no liquidity risk.

To assist the participants in TARGET2 in managing liquidity risk, TARGET2 provides comprehensive liquidity management tools such as offsetting mechanisms, settlement algorithms, liquidity reservations and payment prioritisation, as well as live monitoring on the platform via the Information and Control Module (ICM) of TARGET2. This monitoring can also be performed for a group of accounts (including DCAs) if a participant holds multiple PM accounts or both PM accounts and DCAs.

The Eurosystem monitors the overall liquidity situation of participants – both intraday and over longer time periods – using the statistical databases available to it in TARGET2. Furthermore, in the course of 2016 a facility will be implemented in TARGET2 whereby the national central banks will also be able to monitor the total liquidity situation of significant banking groups at cross-border level.

In the event of the insolvency of a participant, transactions already entered into the system will be settled (as required by the Settlement Finality Directive) provided adequate funds are available. Depending on the legal requirements of each country, new payment orders will either be rejected or processed on an individual basis if ordered by the insolvency administrator.

Finally the ESCB also carries out detailed simulations using data taken from TARGET2 to analyse the effect of liquidity shortages, in particular extreme situations in which collateral values decline dramatically.

## Principle 8

### Settlement finality

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An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

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The unilateral revocation of transfer orders in TARGET2 is possible up to the point of entry into the system. The information is laid out in the TARGET2 Guideline, which is

available on the ECB's website in all national languages, and on the websites of the national central banks.

For transactions on PM accounts, this moment corresponds to the time at which the debit is made on the payer's account. At any moment before that, and as long as the transaction is not included in an optimisation algorithm, the transaction can be unilaterally revoked by the sender. This covers all transactions that have been queued, e.g. that cannot be settled owing to insufficient funds, exceed the sender's bilateral or multilateral limit, use an earliest debit time indicator or are warehoused payments. The same applies to transfer orders executed on DCAs when these transfer orders do not result from instructions subject to matching.

Ancillary system transactions can only be revoked by the settlement banks or by the submitting ancillary system using the (optional) "information period" feature if that period has not expired. If the information period feature is used, all settlement banks receive a broadcast on their ICM, which indicates the time until which they can request a revocation of the instruction. However, as only central banks can carry out this procedure, they would always act on behalf of the requesting party (be it a settlement bank or the submitting ancillary system).

Transfer orders executed on DCAs resulting from the matching of instructions (e.g. the cash leg of delivery-versus-payment settlement) can be unilaterally revoked before the execution of the debit on the DCA. Technically, the revocation can only be made by the sending participant using the T2S GUI or an A2A instruction.

## **Principle 9**

### **Money settlements**

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An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

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TARGET2 only provides settlement services in real time, in euro and in central bank money.

## **Principle 12**

### **Exchange-of-value settlement systems**

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If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

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TARGET2 offers neither payment versus payment (PvP) nor delivery versus payment (DvP) services.

## Principle 13

### Participant-default rules and procedures

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An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

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Events of default are clearly defined in the TARGET2 Guideline. In the event of a participant's default, the operator of the TARGET2 component would be informed by the relevant authorities (e.g. regulators, supervisors or overseers).

Upon instruction, the operator would block the account(s) of the defaulting participant in TARGET2. At the same time the operator would block the account and inform all the other TARGET2 participants about the default by means of a broadcast. If a DCA were to be blocked, all central securities depositories in T2S would also be informed.

Transfer orders that had reached the point of entry before the operator is (deemed to be) informed about the opening of insolvency proceedings would be processed as normal. This does not constitute a guarantee that they will be successfully settled. Transfer orders that had not reached the point of entry before the operator is (deemed to be) informed about the opening of insolvency proceedings would be put on hold. Their processing would only be resumed if the central banks were to release them at the instruction of a competent authority (e.g. court, designated administrator). On PM accounts, all transfer orders that have not been settled by the time TARGET2 closes are automatically rejected. For DCAs, all transfer orders stemming from DvP transactions that have not been settled by the time T2S closes are automatically recycled.

It should be noted that the above-listed rules create obligations only for the competent authorities and the operator of TARGET2. They do not create any obligations on the part of (non-defaulting) TARGET2 participants.

## Principle 15

### General business risk

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An FMI should identify, monitor and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

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TARGET2 is run on a cost recovery basis. The operator carries out quarterly reviews of financial performance, comparing the costs and revenues of the system with the projections made. Once a year, a report on the overall financial performance of the system is submitted to the Governing Council, and if necessary the Council would be asked to agree remedial actions if the financial performance were out of line with the

Council's expectations. Remedial actions could consist of, for instance, an extension of the payback period, adjustment of the pricing scheme, dismantlement of specific services, downsizing of the system's capacity or a renegotiation of the running costs with the providing central banks. These remedial actions would be envisaged in the context of general risk management and are distinct from the measures that could be invoked in the context of the recovery plan.

In the event that the operator wishes to enhance the system with new features, the providing central banks prepare a cost estimate for each feature. The operator subsequently conducts a cost/benefit analysis, which assesses what additional revenues it may expect from that feature. The outcome of this analysis, as well as the impact of the investment on the cost recovery projections, is considered before any decision is taken.

In the event of sudden large losses owing to a collapse in revenues or a very large cost item, the Governing Council of the ECB would ensure that the Eurosystem finances the activities of the operator to maintain the activity of the system as long as is needed, in line with the agreed recovery plan for TARGET2.

## **Principle 16**

### **Custody and investment risks**

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An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market and liquidity risks.

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All credit operations that the Eurosystem central banks carry out with counterparties are collateralised. This applies to the regular refinancing operations in the framework of monetary policy operations as well as to intraday credit granted to TARGET2 participants. When transferring collateral issued in a central securities depository or an international central securities depository, participants/counterparties make use of securities settlement systems, which are regularly assessed against the Eurosystem user standards to determine whether they are eligible for use in the collateralisation of Eurosystem credit operations. User standards can be found in "Standards for the use of EU securities settlement systems in ESCB credit operations (January 1998)", which is publicly available on the ECB's website, together with the outcome of the assessments.

The operator of TARGET2 does not invest any assets received from, or hold such on behalf of, its participants.



## Principle 17

### Operational risk

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An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

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TARGET2 has extensive risk management procedures in place. These include specific frameworks focusing on operational and information security risks. These frameworks are reviewed annually in the light of developments in technology and the general business environment.

The aim of the information security framework is to assess the operational impact on TARGET2 of a failure to effectively safeguard data, focusing in particular on IT security and reliability. The operational security framework is broader, in that it also addresses risks which could arise from ineffective governance structures or business processes.

Both frameworks make use of various methods to identify and assess operational risks, including analysis of audit findings and recommendations, security assessments and test reports. In addition, the operator makes active use of expert advice in fields such as IT security, legal issues and procurement. Such experts may help to identify the most significant category-specific risk events and assess whether they are realistic, taking into consideration the latest developments in the field.

Events in environments that are to some extent comparable (e.g. governments, public agencies, research centres, university faculties, commercial banks, etc.) are also analysed, and information obtainable from specialised organisations is checked.

The security of the TARGET2 technical structure is ensured by using multiple sites in different countries, which are regularly rotated to ensure systems and staff are in continuous operational readiness. In addition to the regular rotation, full failover tests from one region to another are regularly conducted. The system has also been designed to avoid single points of failure, ensuring that even in the event of a failure of SWIFT, the network provider, the most critical payments can still be made.

Service level agreements are in place for all service providers. These set a variety of performance objectives, including an availability goal of 99.7% for the TARGET2 platform itself. The performance of service providers against these objectives is regularly reviewed, and any anomalies are reported to the Governing Council. In the unlikely event of an incident, contingency procedures are in place and are regularly tested, including with market participants. Incidents are also followed up with a view to preventing their recurrence and to learning from them. Contingency arrangements are published and discussed regularly with market participants.

All changes to the system go through an extensive risk review and testing procedure before being implemented in the live environment, in order to minimise the risk of a change causing a system failure. A thorough risk analysis of the system and of any modifications is carried out, and any significant risks identified are reported to the Governing Council for a decision on mitigating measures.

In addition to the measures put in place by the TARGET2 operators, critical participants are also required to have extensive risk management procedures in place, including secondary sites, contingency procedures and regular testing.

## Principle 18

### Access and participation requirements

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An FMI should have objective, risk-based and publicly disclosed criteria for participation, which permit fair and open access.

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Access criteria and requirements for TARGET2 are defined in Annex II and IIa to the TARGET2 Guideline, which govern participation of PM account and DCA holders in TARGET2 respectively. The legal criteria are identical for PM account and DCA holders, as both are deemed (direct) participants in TARGET2. As the Guideline is implemented by all Eurosystem central banks under their respective national law, the access criteria and requirements are the same and applied equally in all the national legal components of TARGET2.

Access criteria and requirements are limited to those necessary to ensure the protection of the individual TARGET2 components under the Settlement Finality Directive and the financial soundness of participants. Operational requirements are limited to those necessary to ensure technical interoperability and avoid undue operational risk.

Direct participation is allowed for (a) credit institutions established in the EEA, including their branches in the EEA; (b) credit institutions established outside the EEA, provided that they act through a branch established in the EEA; and (c) national central banks of Member States and the ECB.

In addition, the central banks/ECB may, on a discretionary basis, allow the following entities to be direct participants: (a) treasury departments of central or regional governments of Member States active in the money markets; (b) public sector bodies of Member States authorised to hold accounts for customers; (c) investment firms established in the EEA; (d) entities managing ancillary systems and acting in that capacity; and (e) credit institutions or any of the entities of the types listed above under (a) to (d) if these are established in a country with which the European Union has entered into a monetary agreement allowing the entities to access payment systems in the European Union.

Applicants must provide a capacity opinion and, for credit institutions established outside the EEA, a country opinion if required by the respective central bank.

The conditions under which a participant may be suspended from TARGET2 or have its account terminated are set out in the TARGET2 Guideline. Termination of an account is mandatory if the participant is declared insolvent or no longer meets the access criteria. The national central bank may also suspend or terminate an account for any other default, including on obligations to the national central bank, or for technical reasons. In addition, if a counterparty's access to monetary policy operations is terminated or suspended, this could also lead to the termination or suspension of its account in TARGET2.

## Principle 19

### Tiered participation arrangements

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An FMI should identify, monitor and manage the material risks to the FMI arising from tiered participation arrangements.

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TARGET2 allows tiered participation arrangements, meaning that some participants rely on the service provided by direct participants to settle payments in TARGET2 subject to contractual arrangements between the two.

There are two possible forms of tiered participation arrangements: the indirect participation and correspondent (also known as addressable BIC) models. Indirect participants are credit institutions established in the EEA that have entered into an agreement with a direct participant to submit payment orders and receive payments via that direct participant's PM account. Addressable BIC holders/correspondents are entities that hold a Business Identifier Code (BIC), are a correspondent or

customer of a direct participant or a branch of a direct or indirect participant, and are able to submit payment orders to and receive payments from a TARGET2 component system via the direct participant.

Neither indirect participants nor correspondents can submit payment orders to TARGET2 directly. Payment orders can only be sent by the direct participants, irrespective of whether the ordering/beneficiary institution is an indirect participant or a correspondent.

Tiered participation is not subject to any further requirements. From an operational and legal point of view there is no relationship between tiered participants and the TARGET2 operator. The TARGET2 operator does not set any obligation as to how a direct participant in TARGET2 should manage its relationship with its tiered participant(s) in terms of, for instance, pricing or credit or liquidity risk deriving from this relationship.

Although the TARGET2 operator does not place any restrictions on direct participants offering access to TARGET2, it does monitor the usage and carry out regular analysis of the values and volumes of payments made in this way. This is done in order to ensure that direct participants would not be exposed to excessive risk in the event of the default of an indirect participant and that this does not pose a risk to the

system. Currently, the overall share by value of payments sent by indirect participants in TARGET2 is stable at about 9% of the total, which is regarded as a very low risk overall. Because the indirect participants are spread over a broad range of direct participants there are no risks connected to concentration. In the event that the largest tiered participant (at group level) were to become a direct participant in TARGET2, it would only have the 39th largest turnover in the system (relative to all other direct participants at group level).

## Principle 21

### Efficiency and effectiveness

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An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

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The European banking community was involved in the design of TARGET2 through public consultations on the functional specifications. Many of the key features and functionalities offered by TARGET2, such as the liquidity-saving features, liquidity management tools and extensive usage of SWIFT services, were developed at the request of the future TARGET2 users. This consultation process helped ensure a smooth migration and high system acceptance among participants.

Specific services (such as liquidity pooling) requested by a subset of participants were developed during the development phase and are offered on an optional basis and priced separately. However, the operator only developed such services if a significant number of participants were interested, in order to ensure costs were recovered. Moreover, the operator aimed to avoid the development of country-specific services, which might hinder financial integration.

The evolution of TARGET2 continues, based on annual releases. Participants are consulted at both a national and pan-European level on the content of new releases and may make requests for new features. Since 2008, regular meetings with participants have been organised in order to maintain relationships and understanding, in particular with the national user groups and groups at European level.

Service level agreements are in place for all service providers. These set a variety of performance objectives, including an availability goal of 99.7% for the TARGET2 platform itself. The performance of service providers against these objectives is reviewed on a monthly basis, and any anomalies are reported to the Governing Council.

The main indicators are: i) processing times: 95% of payments within five minutes and the remainder within 15 minutes; ii) availability rate higher than 99.7%; iii) Recovery Point Objective (RPO) equal to 0 and Recovery Time Objective (RTO) of less than 1 hour for a major failure or disaster (relocation to the secondary site of the same region); and iv) RPO of less than two minutes and RTO of less than two hours for a regional disaster.

Other critical indicators are also tracked, such as the average number and peak number of payments per day, yearly growth, number of banks (direct participants), operational hours, processing times and availability of TARGET2.

For the DCA-related services, a service level agreement (SLA) also exists between the central banks operating the T2S platform and the Eurosystem.

## Principle 22

### Communication procedures and standards

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An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement and recording.

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For most payment services in TARGET2, SWIFT services are used (FIN, InterAct, FileAct and Browse) using standard SWIFT message types, to enable standardised communication between the TARGET2 system and its participants. Since November 2010, a secure connection via the internet using the HTTPS protocol has been available for low-volume TARGET2 participants in addition to the SWIFT connection.

For access to DCAs, participants have a choice between two value-added network providers selected by the Eurosystem. These are SWIFT and SIA/COLT.

TARGET2 also uses some proprietary standards when no internationally accepted standard is available (or was available at the time TARGET2 was built). These are for system-specific services that would not be accepted for registration by the standardisation bodies, in particular the messages used by the ancillary system interface. These proprietary messages were, however, built following the approach used by SWIFT for the registered XML standards as far as possible.

Finally, whenever a new standard is made available by SWIFT to replace an existing proprietary standard, it is also implemented in TARGET2.

All parties in TARGET2 are identified by their own BIC. In order to support automatic routing of payments, the system makes a structured TARGET2 directory in proprietary format available to all participants in electronic form.

For DCA services, the interaction between the participants and the T2S platform relies entirely on ISO 20022 message standards.

To ensure continued compliance with international standards, the TARGET2 operators closely monitor release management by the standardisation groups or bodies (e.g. SWIFT for MT messages, ISO for camt or pacs messages). The impact of any change to one of these standards is then assessed and included in the change and release management for TARGET2.

## Principle 23

### Disclosure of rules, key procedures, and market data

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An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

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The system rules for participants, which cover the rights and obligations of participants, are laid down in the TARGET2 Guideline, which includes the Harmonised Conditions for Participation in TARGET2 (Annex II for PM account holders and Annex IIa for DCA holders). The Guideline is available in all EU languages on the ECB's website and in national languages on the national central banks' websites. The Guideline has been in place since April 2007 and has been regularly updated since then to take into account system changes, new features and the need to adjust to new legislation or make clarifications. The system rules also include the contingency procedures to be followed if necessary.

In addition to the Guideline, the Eurosystem also publishes the "Information Guide for TARGET2 Users" which, as well as explaining normal procedures in TARGET2, also covers procedures in abnormal situations according to the definition of incidents provided, incident handling procedures, and procedures for SSP failure based on time of day and other failures including technical bank failures.

The TARGET2 pricing structure is also included in the Harmonised Conditions and a guide, the "User Information Guide to the TARGET2 Pricing", has also been produced to help participants familiarise themselves with all the processes relating to billing and invoicing. The pricing documentation is updated if the TARGET2 pricing scheme is amended.

For ancillary systems, bilateral agreements based on the Harmonised Conditions and Annex IV to the Guideline govern the relationship between the central banks and the ancillary systems.

In addition to the system rules, technical documentation on TARGET2 is also available to users. For PM and ancillary system services, the technical documentation consists of the TARGET2 General Functional Specifications (GFS), the TARGET2 User Detailed Functional Specifications (UDFS) and the TARGET2 ICM User Handbook (UHB).

For DCAs, the technical documentation consists of the T2S General Functional Specifications (GFS), the T2S User Detailed Functional Specifications (UDFS) and the T2S User Handbook (UHB).

All these documents are published on the ECB's and the national central banks' websites.

As previously stated, the Eurosystem constantly engages with its participants through regular meetings, both at national level via the individual national central banks and at pan-European level for the larger banking groups. Feedback from these groups is taken into account when updates to legal and explanatory documentation are made.

In addition, the national central banks constantly monitor the behaviour of their participants and are in a position to intervene or discuss with the participants any problems that arise in their operations or with their understanding of the system and its rules.

The Eurosystem also regularly publishes information on TARGET2, including monthly statistical summaries of the main indicators of the values and volumes processed. The main publications are the TARGET Annual Report, a comprehensive publication providing a large set of statistical indicators relating to the activities carried out over the last calendar year, published each May, and “TARGET2 facts”, which includes data on participation (direct, indirect, ancillary systems), the performance of the SSP and TARGET2’s share of total large-value payment system traffic in euro. This information is updated annually.

## 5 List of publicly available resources

The following documents are publicly available:

- [Guide to TARGET2 User Testing](#) version 3
- [Guideline ECB/2011/14 on monetary policy instruments and procedures of the Eurosystem. Unofficial consolidated text produced by the Publications Office of the European Union, 3 January 2013](#)
- Standards for the use of EU [securities](#) settlement systems in ESCB credit operations (January 1998)
- [Guideline of the ECB of 5 December 2012 on a Trans-European Automated](#)
- [Real-time Gross settlement Express Transfer system \(TARGET2\) \(recast\) \(ECB/2012/27\)](#)
- [Guideline of 2 April 2015 amending the Guideline on TARGET2 \(changes stemming from T2S\)](#)
- Information and Control Module [User Handbook](#) version 8.0
- [Information Guide for TARGET2 Users](#) version 8.0
- [Quarterly update of TARGET2 performance indicators](#)
- [TARGET Annual Report](#)
- [TARGET2 Glossary](#)
- User Detailed Functional Specifications (UDFS) version 9.0 [1st book](#), [2nd book](#) and [4th book](#)
- [User Information Guide to the TARGET2 Pricing](#) (version 4.0)