



**TÜRKİYE CUMHURİYET
MERKEZ BANKASI**

CBRT Payment Systems

Disclosure of the Self-Assessment of Observance of the CPMI-IOSCO Principles for Financial Market Infrastructures

**Research and Business Development Division
Payment Systems Department
CENTRAL BANK OF THE REPUBLIC OF TURKEY**

10 March 2017

This disclosure can also be found at www.tcmb.gov.tr

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Abbreviations

Law No. 6493	Law on Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions
BIS	Bank for International Settlements
CPMI	Committee on Payments and Market Infrastructures ¹
CPSS	Committee on Payment and Settlement Systems ¹
CBRT	Central Bank of the Republic of Turkey
CCP	Central Counterparty
CSD	Central Securities Depository
DVP	Delivery <i>versus</i> Payment
EFT	Electronic Funds Transfer System (Interbank Turkish Lira Transfer System)
ESTS	Electronic Securities Transfer and Settlement System
FMI	Financial Market Infrastructure
FSAP	Financial Sector Assessment Program
IOSCO	International Organization for Securities Commissions
Rulebook	CBRT Payment Systems Operational Rule Book
Payment Systems Law	Law on Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions (Law No 6493)
PFMI	Principles for Financial Market Infrastructures
RPS	Retail Payment System (Customers' Turkish Lira Transfer System)
RTGS	Real Time Gross Settlement
Rule Book	CBRT Payment Systems Operational Rule Book
TR	Trade Repository

¹ CPSS is renamed as CPMI after September 1, 2014.

Executive Summary

Financial market infrastructures (FMI) that facilitate the clearing, settlement, and recording of payments, securities, derivatives and other financial instruments among their participants are vital for the economy and finance of a country. Systemically important payment systems, securities settlement systems, central securities depositories, central counterparties and trade repositories are considered as FMIs.

As an outcome of the joint work of the Committee on Payments and Market Infrastructures (CPMI) of the Bank for International Settlements (BIS) and the International Organization for Securities Commissions (IOSCO), aiming to help strengthen the financial infrastructures and markets, the report entitled *Principles for financial market infrastructures (PFMI)* was published in April 2012. The PFMI have since been regarded as an integrated standard for FPA oversight practice and have also been used in Financial Sector Assessment Program (FSAP) carried out by the IMF and the World Bank.

The Central Bank of the Republic of Turkey (CBRT) is the founder, owner, operator and overseer of the **CBRT Payment Systems** that consists of 3 settlement components: Electronic Funds Transfer (**EFT**) System, Electronic Securities Transfer and Settlement (**ESTS**) System, and Retail Payment System (**RPS**). EFT System and RPS are both real-time gross settlement payment systems for domestic Turkish lira payments, where the former settles large-value interbank payments while the latter the retail ones. ESTS System, on the other hand, is the securities settlement system for government debt securities.

With the exception of the Central Securities Depository (MKK), which is a participant of ESTS on special conditions, only banks can participate in the CBRT Payment Systems. As of end of 2016, the system has 52 participants.

The legal basis of CBRT Payment Systems involves related laws (CBRT Law, Payment Systems Law, Banking Law, Law of Obligations, etc.), CBRT Payment Systems Operations Rules (the Rule Book) and other regulations published by the CBRT. The Payment Systems Department of the CBRT carries out duties that are related with payment systems.

This document summarizes the result of a study performed by the CBRT to assess the CBRT Payment Systems for the observance of the PFMI, and to determine possible improvements to achieve full observance. This self-assessment is based on CPMI-IOSCO report entitled *Principles for financial market infrastructures: Disclosure framework and Assessment methodology*. All of the principles and key considerations which can be relevant for the systems have been assessed in the study. On the other hand, the assessment focuses on the CBRT Payment Systems and their infrastructure, rules and policies. The scope of the assessment does not include operations, assets, rules or policies which are connected with monetary policy or asset management of the CBRT.

Following sections of the document include information about systems, CBRT's organizational structure, related regulations and summary of the assessment.

RPS and EFT have been assessed for principles applicable for payment systems, while ESTS has been assessed for principles applicable for security settlement systems and central securities depositories. All three systems have been rated as observing all of the principles that are relevant for them.

Table-1: Summary of self-assessment

Principle	Assessment
1- Legal basis	Observed
2- Governance	Observed
3- Framework for the comprehensive management of risks	Observed
4- Credit risk	Observed
5- Collateral	Observed
6- Margin	Not applicable
7- Liquidity risk	Observed
8- Settlement finality	Observed
9- Money settlements	Observed
10- Physical deliveries	Observed
11- Central securities depositories	Observed
12- Exchange-of-value settlement systems	Observed
13- Participant-default rules and procedures	Observed
14- Segregation and portability	Not applicable
15- General business and operational risk management	Observed
16- Custody and investment risks	Observed
17- Operational risk	Observed
18- Access and participation requirements	Observed
19- Tiered participation arrangements	Observed
20- FMI links	Not applicable
21- Efficiency and effectiveness	Observed
22- Communication procedures and standards	Observed
23- Disclosure of rules, key procedures, and market data	Observed
24- Disclosure of market data by trade repositories	Not applicable

Summary of major changes since the last update of the disclosure

5 Jan 2016	First release of the disclosure
1 Mar 2017	Second release of the disclosure after the review of 2017

CBRT Payment Systems

General description

The Central Bank of the Republic of Turkey (CBRT) is responsible for implementing monetary and exchange rate policies, and printing banknotes in Turkey.

Payment and securities settlement systems are also within the province of the CBRT. The CBRT Law² (Law No 1211) mentions *establishing payment, securities transfer and settlement systems, ensuring the uninterrupted operation and oversight of the systems established and to be established, making necessary regulations, determining methods and instruments including electronic environment that shall be used for payments* among the fundamental duties and powers of the CBRT. Moreover, Law on Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions³ (Payment Systems Law, Law No 6493) authorizes the CBRT to issue licenses for payment and securities settlement systems operators, to make secondary regulations, and to oversee the payment and securities settlement systems.

The CBRT is the founder, owner, operator and overseer of the **CBRT Payment Systems** that comprises three settlement components: Electronic Funds Transfer (**EFT**) System, Retail Payment System (**RPS**) and Electronic Securities Settlement (**ESTS**) System. EFT System and RPS are both real-time gross settlement payment systems for domestic Turkish lira payments. ESTS System, on the other hand, is the securities settlement system for government debt securities.

Time critical and high value payments such as correspondent banking payments or money market payments among banks or between banks and the central bank are processed by the EFT System. Low priority customer payments (customer payments to a name or an account, rental, salary or credit card payments) and public payments, which constitute nearly 99% of total volume of payments, are processed by RPS. Issue, redemption, electronic bookkeeping and book entry transfer of government debt securities and the CBRT liquidity bonds are performed by ESTS. ESTS also serves as the central securities depository for government debt securities. Detailed information on the systems is given in "System Design and Operations" section of this document, on the CBRT web site⁴ and the CBRT Payment System User Group web site⁵.

The CBRT Payment Systems serve Turkish banking sector. Although services provided by the systems reach eventually to end-users, only banks are allowed to participate in the systems. As an exception, the Central Securities Depository (MKK) is a special participant of ESTS.

² www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Regulations/The+Law+on+the+Central+Bank+of+the+Republic+of+Turkey

³ www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Regulations/The+Payment+Systems+Law

⁴ www.tcmb.gov.tr/wps/wcm/connect/tcmb+en/tcmb+en/main+menu/payment+systems/payment+systems+in+turkey/electronic+fund+transfer+system+and+electronic+securities+transfer+system

⁵ <http://eftemkt.tcmb.gov.tr/>

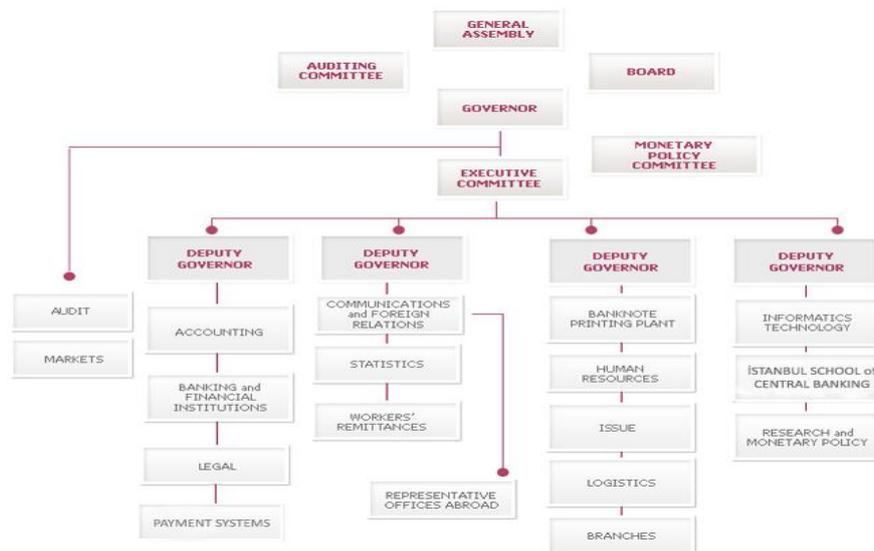
In 2016, RPS settled 374,798,743 payments with a total value of 11.30 trillion TL, whereas EFT settled 2,500,354 payments with a total value of 45.05 trillion TL. Daily average number and value of payments were about 1,503,184 and 225 billion TL, respectively. Of the 282,898 securities transactions handled by ESTS, 99,542 were DvP operations, for which the total value of corresponding payment legs settled in EFT was 6.29 trillion TL.

General organisation

The organs of the CBRT, and their duties and powers are basically defined in the CBRT Law. According to the CBRT Law, the highest decision body for the payments systems is the CBRT Board. The CBRT Board has the authority to make the strategic decisions related with payment systems, to approve the relevant directives, to define the roles of the departments, and to approve the budget needed for investment and operation.

As it is the case for the general governance of the central bank, the Executive Committee of the CBRT has an important role on payment systems governance model. The subjects that are to be escalated to the CBRT Board are first evaluated by the Executive Committee. In addition, amendments to the CBRT Payment Systems Rule Book are approved by the Executive Committee.

CBRT departments account for their duties to the Executive Committee and the CBRT Board. The General Assembly reviews the annual reports presented by the CBRT Board and the Auditing Committee, discharges the CBRT Board and the Auditing Committee via approving the financial tables of these reports. The general organization structure of the CBRT is given in Figure-1⁶.



⁶ Figure is available on the web site of the CBRT.
www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Organizational+Structure

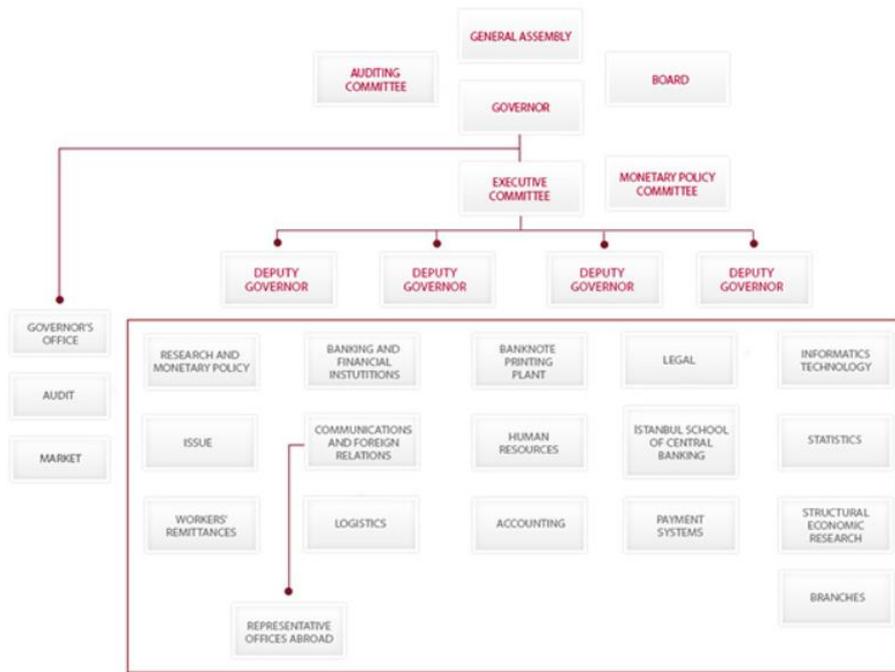
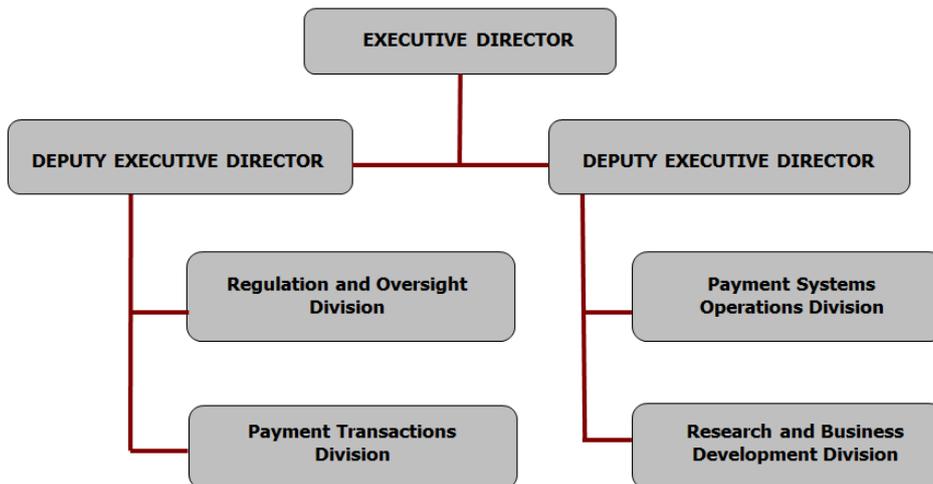


Figure-1: Organization Structure of the CBRT

The Payment Systems Department of the CBRT is responsible to establish the CBRT Payment Systems, to operate them effectively and efficiently, to enhance them according to the predefined policies, and to oversee payment and securities settlement systems. The organization structure of the department is given in Figure-2.



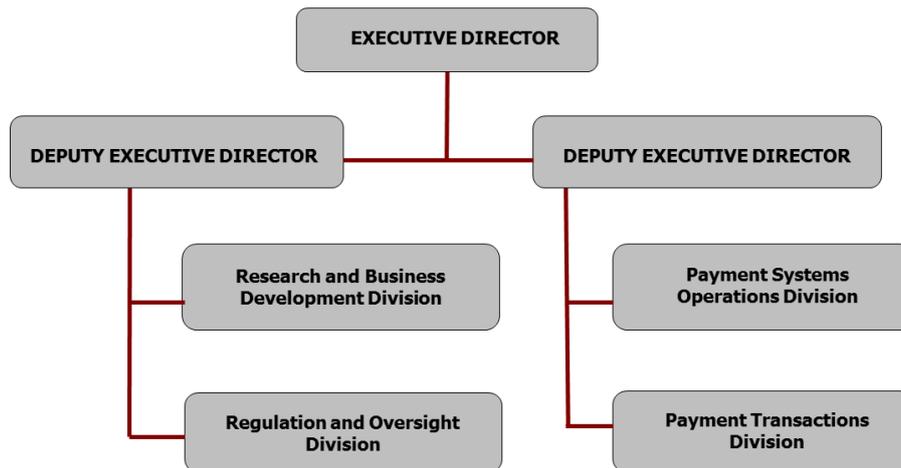


Figure-2: Organization Structure of the CBRT Payment Systems Department

Legal and regulatory framework

The legal basis of the CBRT Payment Systems involves related laws (CBRT Law, Payment Systems Law, Banking Law, Law of Obligations, etc.), secondary legislation based on these laws, the CBRT Payment Systems Rule Book (the Rule Book), and other regulations published by the CBRT.

Settlement finality provisions for payment and securities settlement systems are defined by the Law on Payment and Settlement Systems, Payment Services and Systems and Electronic Money Institutions. Finality of the settlements in the CBRT Payment Systems is protected by this law. The CBRT Payment Systems are under the oversight of related CBRT departments.

The Rule Book defines the operational rules of the system as well as the rights and responsibilities of the parties. In the Rule Book;

- Rules on operation of the system (participation and orderly exit, operational days and hours, finality, irrevocability and irreversibility of the settlement, settlement principles, pricing principles),
- Powers of the CBRT,
- Operational and technical obligations of the CBRT,
- Obligations of a participant (about software, hardware, infrastructure, security, responsible employees, availability, service management, conformity to the rules, cooperation, obligations as a message sender or receiver),
- Other rules (disaster cases, penal sanctions, resolution of disputes, etc.)

are defined.

The moment of entry of a transfer order and the moment when the transfer order becomes irrevocable are defined in the Rule Book. Accordingly, settlements are final when the transactions are reflected in the settlement accounts.

The Rule Book is consistent with the related articles of Payment Systems Law and the Regulation on Payment and Settlement Systems' Activities.

System design and operations

The CBRT has worked on a comprehensive restructuring process of the existing payment systems, which were formerly outsourced, during the period of 2012-2013 and redeveloped the systems with its own resources and personnel. The CBRT Payment Systems infrastructure consists of Participant Interface System (PIS), Electronic Funds Transfer System (EFT), Retail Payment System (RPS) and Electronic Securities Transfer System (ESTS) as shown in Figure-3.

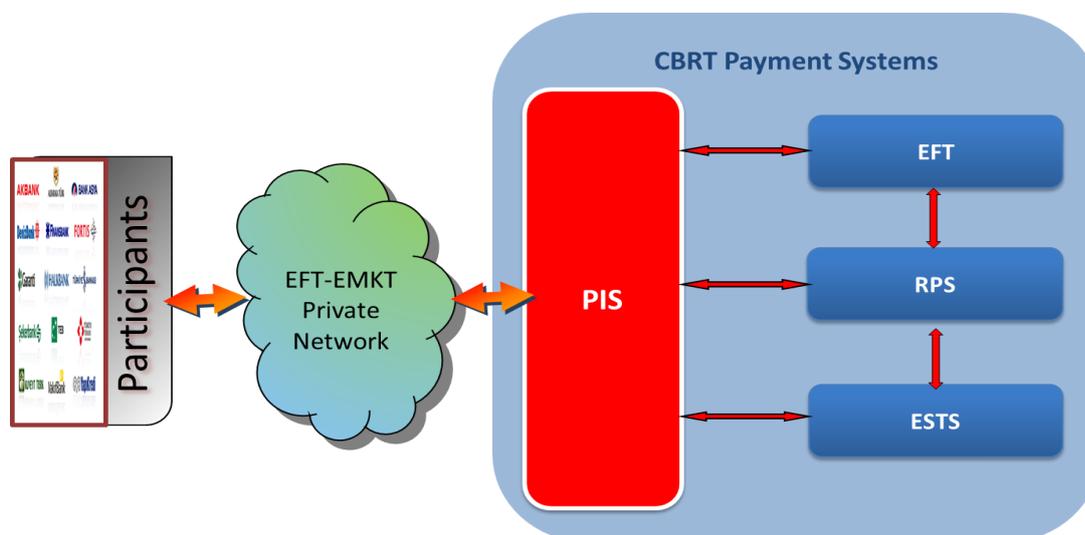


Figure-3: CBRT Payment Systems Infrastructure

In this infrastructure, two payment systems, namely EFT and RPS, transfer funds between banks and settles Turkish lira payments electronically in real time.

ESTS is a securities settlement system for book entry transfer and settlement of government debt securities. In accordance with the Delivery *versus* Payment (DvP) principle, ESTS and EFT systems work in an integrated manner so that securities transfer in ESTS is completed if and only if related payment transfer is settled in EFT.

The rules and procedures of the systems are defined in the CBRT Payment Systems Operational Rule Book (the Rule Book). Business continuity and disaster recovery guides of the systems are up to date and relevant sections are shared with the participants.

Detailed information on components of the CBRT Payment Systems is given in the following sections.

Participant Interface System (PIS)

PIS is the interfacing component of the CBRT Payment Systems. The messaging between the participants and the settlement components (RPS, EFT, and ESTS) is provided by PIS. The participants access to PIS through a closed private network. High-level access and security measures exist on the private network.

PIS checks the access rights and security measures, and validates messages. To this end, PIS checks for the source address of the request, verifies digital signatures and decrypts the messages using electronic certificates, and performs syntactic and semantic controls on messages. Moreover, end of day reports and files are shared with participants through the

secure data sharing infrastructure of PIS.

Retail Payment System (RPS)

RPS processes low priority customer payments, which nowadays constitute 99% of the payment volume of the CBRT Payment Systems.

PIS processes customer payments to an account or a name, public payments, rental payments, salary payments and credit card payments with Real Time Gross Settlement (RTGS) principle. These payments are handled according to their entry time, and are settled if participants have sufficient funds in their settlement accounts. While payments, which cannot be settled due to lack of funds, get waited, the next payment in the queue is processed (using by-pass FIFO principle), and all the payments are tried to be processed. Priorities are not used in RPS, as the system aims to settle maximum number of payments with the available liquidity. Unsettled payments are cancelled at the end of the day.

Participants may inquire their balances and waiting messages in real time, and transfer funds between their EFT and RPS accounts during the day.

Since the settlement is guaranteed both legally and technically, settled messages are delivered to the receiver immediately.

Electronic Funds Transfer System (EFT)

EFT is an RTGS system which settles time-critical and usually high-value TL interbank payments, typically stemming from banking operations, money market operations and operations related with correspondent banking services, either among banks or between banks and the CBRT. The payment legs of DvP operations are also settled through EFT.

These systemically important payments with low volume and high value are processed one by one within priorities and according to the time of entry (using FIFO within priorities principle). Incoming payments are processed immediately upon arrival and settled if funds are available. Payments that cannot be immediately settled are not rejected but rather queued.

The online-inquiry facility of the system allows participants to monitor their balances and queued payments. Participants may also change the priorities of their queued payments or even cancel them. Unsettled payments in the queues are cancelled automatically during end of day processing.

EFT also has a multilateral offsetting functionality that allows queued payments to be settled multilaterally for faster settlement. This functionality solves liquidity shortages and gridlocks and hence provides liquidity saving. Moreover, the participants may transfer funds between their EFT and RPS accounts during the day.

Electronic Securities Transfer and Settlement System (ESTS)

ESTS supports primary and secondary market operations of government debt securities and the CBRT liquidity bonds from their initial issue through to their final redemption. ESTS, which maintains securities holdings in dematerialised form, is also the Central Securities Depository for government debt securities.

In ESTS, securities are held in securities accounts. Securities, which banks are required to lodge as collateral, are kept in dedicated collateral accounts, for which inward and outward movements require authorisation of the CBRT. The CBRT may or may not authorise a movement depending on collateral requirements of the participant.

The segregation of securities belonging to a participant's customers is supported by holding customer assets in a special ESTS account of the Central Registry Agency (MKK), which keeps them in the name of the customers.

ESTS works in an integrated manner with EFT to support DvP Model 1, which ensures a securities movement in ESTS is completed if and only if the related payment transfer is settled in EFT. Apart from DvP, ESTS supports various business flows such as free transfers of securities between participants, repositioning of securities between the accounts of a participant, direct debiting of securities by the CBRT, and the CBRT Portfolio Operations. Additional business flows exist for DvP operations concerning customer assets held within MKK account.

Working principles

Working principles of the CBRT Payment Systems are as follows:

Daily Operation

Except for the official holidays, the systems operate every weekday. In business days, systems open automatically at 08.30 and balances of participants' accounts at the CBRT branches are transferred to their EFT and RPS settlement accounts.

PIS processes all messages sent by the participants based on message types, routes communication messages and inquiry requests to their destination and delivers notifications on operations of EFT, RPS and ESTS to participants.

Systems close automatically at 17.30 on normal working days and at 13.00 on half working days. The CBRT may change operational days and hours. During the closing procedure, end of the day reports are created automatically and delivered to the participants, balances of EFT and RPS settlement accounts are transferred back to participants' accounts in the CBRT branches, and daily maintenance operations are started.

Obligations of stakeholders

Rights and obligations of the parties are defined in the Rule Book. Accordingly, the CBRT is obliged to keep the settlement accounts, to transfer funds between accounts, to keep the archive of messages, to perform transactions on behalf of the participants in case of the conditions stated in the CBRT Payment Systems Disaster Recovery and Contingency Guide, to conduct business continuity operations, to determine and realize changes to be made in the system by assessing the operational demands of the participants in the view of risk management, regulations and international standards, to develop and operate the applications, to ensure the information security, to prepare the documents, procedures and technical guides regarding the participant applications, to provide service management support to the participants, to provide the tools and infrastructures for the smooth functioning of the system, to supervise the participants disaster recovery preparations, and to act in line with the CBRT Payment Systems Disaster Recovery and Contingency Guide in case of emergency disaster.

On the other side, participants are obliged to monitor the security, continuity, performance and capacity of their software and network infrastructure and to take precautions if necessary, to upgrade their software and infrastructure as required by the CBRT on time, to keep an archive, and to take security precautions declared by the CBRT.

Principle-by-principle summary narrative disclosure

<p>Principle 1: Legal basis</p> <p>An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.</p>	
<p>Summary narrative</p>	<p>Rating: Observed</p> <p>The legal basis of the CBRT Payment Systems involves related laws (CBRT Law, Payment Systems Law, Banking Law, Law of Obligations, etc.), secondary legislation based on these laws, the CBRT Payment Systems Rule Book (the Rule Book) and other regulations published by the CBRT.</p> <p>Settlement finality provisions for payment and securities settlement systems are defined by the Payment Systems Law. Finality of the settlements in the CBRT payment systems are protected by this law.</p> <p>The moment of entry of a transfer order and the moment when the transfer order becomes irrevocable are defined in the Article 8 of the Rule Book. Accordingly, settlements are final when the transactions are reflected in the settlement accounts.</p> <p>The Rule Book is consistent with the related articles of the Payment Systems Law and the Regulation on Payment and Securities Settlement Systems' Activities. The consistency is assessed through the payment systems oversight activities.</p> <p>Laws, regulations, rules, procedures and contracts that regulate the systems and their operations are disclosed to the public and participants. Legal basis provides both a high degree of certainty and a legal assurance for the finality of settlement.</p>
<p>Principle 2: Governance</p> <p>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.</p>	
<p>Summary narrative</p>	<p>Rating: Observed</p> <p>This principle is assessed considering the exceptions for FMIs operated by central banks as stated both in PFMI and in <i>Application of the Principles for financial market infrastructures to central bank FMIs</i>.⁷</p> <p>The Objectives and Policies of the CBRT Regarding Payment and Securities Settlement Systems⁸ place a high priority on safety and efficiency. The CBRT</p>

⁷ Application of the Principles for financial market infrastructures to central bank FMIs, CPMI-IOSCO, August 2015. (<http://www.bis.org/cpmi/publ/d130.htm>)

	has documented governance arrangements that define clear and direct lines of responsibility and accountability. Mechanisms exist for involving stakeholders in decision-making process, and the CBRT effectively communicates with the stakeholders through different channels.
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Principle 3: Framework for the comprehensive management of risks

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

Summary narrative

Rating: Observed

The CBRT Payment Systems have a comprehensive risk management framework consisting of an application process as well as a risk management policy document that defines principles, aim, scope, roles and responsibilities regarding risk management.

The risks within the CBRT Payment Systems are identified, analysed, evaluated and treated through the risk management framework, which is reviewed at least once a year.

The Risk Management Framework of the CBRT Payment Systems:

- aims to reduce all risks to the lowest possible level and to maintain critical services in any case,
- emphasise cooperation with all stakeholders,
- takes into consideration the risks arising from interdependencies and interlinkages among participants or FMI's,
- requires regular reporting of the developments to the CBRT's top management.

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures 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. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover 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 potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market

⁸ www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Main+Menu/PAYMENT+SYSTEMS/Objectives+and+Policies

conditions.	
Summary narrative	<p>Rating: Observed</p> <p>Real-time gross settlement method is used in the CBRT Payment Systems and overdrafts from settlement accounts are not allowed. Settlements of the transfer orders accepted to the system are not guaranteed and a transfer order is only settled when the balance of participant's settlement account is sufficient. Therefore, the CBRT Payment Systems do not face a credit risk even in the case of a default of its one or more participants.</p> <p>The DvP mechanism eliminates the principal risk in the settlement of securities. As the settlement is in central bank money, no liquidity provider is needed.</p>
<p>Principle 5: Collateral</p> <p>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.</p>	
Summary narrative	<p>Rating: Observed</p> <p>Real-time gross settlement method is used in the CBRT Payment Systems and overdrafts from settlement accounts are not allowed. Settlements of the transfer orders accepted to the system are not guaranteed and they are only settled when the balance of the participant's settlement account is sufficient. Therefore, the CBRT is not exposed to credit risk as a system operator, and hence does not need collateral against credit risk.</p> <p>Additionally, the CBRT provides intraday or overnight credit against collateral to financial institutions to eliminate temporary liquidity shortages that may cause interruption in the payment system. Only low-risk assets are accepted as collateral; haircuts are applied according to participant's and asset's risk profiles.</p>
<p>Principle 6: Margin</p> <p>A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.</p>	
Summary narrative	<p>Rating: Not applicable</p> <p>This principle is relevant to CCPs and hence not applicable for the CBRT Payment Systems.</p>
<p>Principle 7: Liquidity risk</p> <p>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</p>	

that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Summary narrative

Rating: Observed

This principle focuses on the liquidity risk of the FMI, rather than that of participants.

In the CBRT Payment Systems, a transfer order is only settled when the balance of the participant's settlement account is sufficient, the settlements of the transfer orders are not guaranteed, overdrafts from settlement accounts are not allowed and collaterals are not needed to complete the settlement. Therefore, the CBRT, as the system operator, is not exposed to liquidity risk even if the participants fail to fulfil their obligations.

In addition, a variety of liquidity saving features and facilities provided to the participants help them to manage their liquidity risk.

Apart from these facilities, banks-only participation criteria and participants' access to the CBRT's intraday credit facility reduce the liquidity risk of the participants. The CBRT monitors System's and participants' liquidity stance.

Principle 8: Settlement finality

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.

Summary narrative

Rating: Observed

The Payment Systems Law protects transfer orders which enter into the system before notification regarding all kind of legal measures and decisions that preclude participants from disposal on their funds or securities. The law also has a clause requiring the system rules to clearly determine the moment when a transfer order becomes irrevocable. The Rule Book explicitly defines the moment when a transfer instruction becomes final.

The systems work in RTGS principle, and participants can monitor the status of their transactions in real-time. Once settled, a transaction can neither be reversed nor revoked.

Moreover, since ESTS works in DvP Model 1, the securities are delivered if and only if the related payment transfer is settled in EFT.

Principle 9: Money settlements

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.

Summary narrative

Rating: Observed

The settlement in the CBRT Payment Systems is in central bank money only.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Summary narrative

Rating: Observed

In ESTS, securities are dematerialised and processed in book-entry form. . These securities can also be transferred out of the system and processed by a CBRT branch.

Although it was possible to rematerialize and physically deliver the securities previously, in November 2012 physical printing of government debt securities ended. With the redemption of latest printed securities, there have been no printed government debt securities since July 2013. Since government debt securities are only in dematerialised form, there is no risk associated with the storage and delivery of physical instruments or commodities.

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Summary narrative

Rating: Observed

The CBRT, in the capacity of the financial agent of the Prime Ministry Undersecretariat of Treasury, carries out the dematerialised issue, custody and redemption of securities, which are issued by the Prime Ministry Undersecretariat of Treasury, by the CBRT, and by some public institutions.

ESTS carries out the book entry transfer and settlement of government debt securities and securities issued by the CBRT (CBRT Liquidity Bills). The CBRT is the Central Securities Depository for the securities issued in ESTS including government debt securities.

Since the CBRT is the CSD for the securities in ESTS, there is neither custody risk stemming from the insolvency of the CSD nor the risk of the participants' securities being sequestered due to the other activities of the system operator.

In ESTS, the securities owned by the participants' customers are segregated from the participants' own holdings and kept in a special securities account of the MKK. MKK keeps these securities by customer details in its system enabling customers to track their holdings.

All the operations by the CBRT in the ESTS require double approval, are logged and, if needed, can be tracked. During the end of day operations of ESTS, participants are notified about their securities subaccount holdings and their daily operations for reconciliation purposes.

	<p>On the other hand, the printing of government debt securities ended in 2012 and dematerialisation of all government debt securities finished in 2013. Consequently, risks associated with the theft, custody or delivery of physical securities have been eliminated.</p>
<p>Principle 12: Exchange-of-value settlement systems</p> <p>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.</p>	
<p>Summary narrative</p>	<p>Rating: Observed</p> <p>In the CBRT Payment Systems, securities are settled in real time DvP principle. For DvP transactions, securities transfers in ESTS and corresponding funds transfers in EFT are carried out in real time gross settlement principle in line with the DvP Model 1.</p>
<p>Principle 13: Participant-default rules and procedures</p> <p>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.</p>	
<p>Summary narrative</p>	<p>Rating: Observed</p> <p>Real-time gross settlement method is used in the CBRT Payment Systems and overdrafts from settlement accounts are not allowed. Settlements of the transfer orders are not guaranteed and they are only settled when the balance of participants' settlement accounts is sufficient. Since the CBRT does not have a credit risk as the system operator, there is no obligation to cover the loss of the default of participants.</p> <p>The rules and procedures that the CBRT will follow in the case of suspension of operations, limitation of operations or defaulting of a participant, or any legal issues that would prevent a participant to access its assets are managed by predefined and approved rules and procedures.</p>
<p>Principle 14: Segregation and portability</p> <p>A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.</p>	
<p>Summary narrative</p>	<p>Rating: Not applicable</p> <p>This principle is relevant to CCPs and hence not applicable for the CBRT Payment Systems.</p>
<p>Principle 15: General business risk</p>	

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.

Summary narrative

Rating: Observed

General business risk is considered to be low since the owner and operator of the CBRT Payment Systems is the central bank. The CBRT can access sufficient liquid assets to meet its current and projected operating expenses under the scenario of a general business risk.

General business risk is managed within the CBRT Payment Systems Risk Management Framework. Controls on this risk are supported by the CBRT accounting and budgeting procedures.

Principle 16: Custody and investment risks

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.

Summary narrative

Rating: Observed

Since the assets within the CBRT Payment Systems are safeguarded within the central bank, which is also the issuer of these assets, the CBRT does not face custody or investment risks caused by custodians.

Principle 17: Operational risk

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.

Summary narrative

Rating: Observed

The CBRT Payment Systems have a comprehensive Risk Management Framework. All types of risks including operational risks, are identified, analysed, evaluated and treated within the scope of the Risk Management Framework, which is reviewed at least once a year.

The Risk Management Framework of the CBRT Payment Systems,

- aims to reduce all the risks to the lowest possible level and maintain critical services in any case.
- emphasise cooperation with all stakeholders,
- takes into consideration the risks arising from interdependencies and

	<p>interlinkages among participants or ,</p> <ul style="list-style-type: none"> • requires regular reporting of the developments to the CBRT's top management. <p>Systems are designed and implemented so that they are free from single point of failures and they are assessed to be among the best application practices due to their high flexibility, robustness and back up capabilities.</p> <p>Moreover, business continuity studies for the CBRT Payment Systems are supported by the CBRT's business continuity activities conducted at the corporate level. In this regard, the sources of operational risk have been identified institutionally, governance processes, roles and responsibilities have been defined, and the Business Continuity Plans for the CBRT Payment Systems have been developed in accordance with the CBRT's Business Continuity Plan and Business Continuity Strategy. In addition, more detailed work has been carried out with systemically important participants and the linked FMIs.</p> <p>Business continuity is supported by a holistic approach that makes use of diversified disciplines such as physical security, information security, change management and project management.</p>
<p>Principle 18: Access and participation requirements</p> <p>An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.</p>	
<p>Summary narrative</p>	<p>Rating: Observed</p> <p>Criteria and requirements for participation are clearly stated in the CBRT Payment Systems Rule Book and disclosed to related parties. Only banks and the MKK, which is a special participant of ESTS for the implementation of safekeeping of the securities in the name of customers, are accepted as participants.</p> <p>Participation criteria are fair and the CBRT Payment Systems allow open access to its participants. The CBRT monitors compliance to participation criteria. Suspension and orderly exit rules are stated in the Rule Book and disclosed to participants.</p>
<p>Principle 19: Tiered participation arrangements</p> <p>An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.</p>	
<p>Summary narrative</p>	<p>Rating: Observed</p> <p>Only direct participation in the CBRT Payment Systems is allowed and there is no definition or rules set for indirect participation. The CBRT deals only with participants. Entities that are not eligible for participation can perform operations through utilities provided by participants, but are treated as customers of participants, rather than indirect participants.</p>

	Moreover, risks that non-bank financial institutions indirectly accessing to the CBRT Payment Systems through the system participants may impose on the CBRT Payment Systems or on the participants have also being monitored.
Principle 20: FMI links An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.	
Summary narrative	Rating: Not applicable <p>This principle is applicable for securities settlement systems, central securities depositories and central counter parties and it is not relevant to payment systems.</p> <p>The MKK is a special participant of ESTS for safekeeping customer securities in the name of owner. However, the relationship between ESTS and the MKK is not regarded as FMI links.</p>
Principle 21: Efficiency and effectiveness An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.	
Summary narrative	Rating: Observed <p>Objectives and Policies of the CBRT Regarding Payment and Securities Settlement Systems are clearly defined and disclosed to the public on the CBRT's web site.</p> <p>To increase the efficiency and effectiveness of the systems, good cooperation among all stakeholders is fostered and facilitated; the facilities for the participants and market conditions are evaluated and improved in accordance with national and international principles, standards and developments. The effectiveness and efficiency of the systems are regularly monitored, assessed and action plans are developed to improve effectiveness and efficiency when needed.</p>
Principle 22: Communication procedures and standards 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.	
Summary narrative	Rating: Observed <p>Message exchange of the CBRT Payment Systems is managed via secure services and using XML message formats. It is possible to convert XML messages used in the CBRT Payment Systems into other message formats.</p>
Principle 23: Disclosure of rules, key procedures, and market data 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.

Summary narrative

Rating: Observed

Rules and procedures for the CBRT Payment Systems are defined clearly and shared by participants so that they can understand risks they may incur by participating in the systems.

System descriptions, system rules, general structure and workflows, summary statistics and pricing policy are disclosed to the public through the CBRT web page and the CBRT Payment Systems User Group web site.

Pricing tariff is defined yearly based on pricing policy and disclosed to participants before its entry into force. . Pricing tariff is also disclosed to the public.

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Summary narrative

Rating: Not applicable

This principle is relevant to trade repositories and hence not applicable for the CBRT Payment Systems.

LIST OF PUBLICLY AVAILABLE RESOURCES

1. CBRT Payment Systems Web Page, eftemkt.tcmb.gov.tr
2. Objectives and Policies of the CBRT Regarding Payment and Securities Settlement Systems,
www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Main+Menu/PAYMENT+SYSTEMS/Objectives+and+Policies
3. CBRT Regulation on Money Markets Implementation, www.tcmb.gov.tr
4. CBRT Governance Arrangements,
www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Decision+Making/
5. CBRT Law (Law No 1211),
www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Regulations/The++Law+on+the+Central+Bank+of+the+Republic+of+Turkey
6. Payment Services and Systems and Electronic Money Foundations Law (Law No 6493)
<http://www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Regulations/The+Payment+Systems+Law>
7. CBRT Governance Structure,
www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Bottom+Menu/About+The+Bank/Organizational+Structure/