

# Treasury Single Account Rapid Assessment Toolkit



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# Rapid Assessment of Treasury Single Account Operations and Payment Systems

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## Introduction

Treasury Single Account (TSA) is one of the proven practices in improving the payment and revenue collection systems, and carrying out consistent control of public expenditures by centralizing the free balances of government bank accounts. The TSA infrastructure is usually implemented as a part of the Financial Management Information System (FMIS) solutions.

This rapid assessment toolkit is designed to assist the government officials in clarifying the current status of TSA operations, and identifying possible improvements in practices/processes, regulations, information security, and payment systems. The key purpose of this exercise is to ensure that Public Financial Management (PFM) reforms supported by ongoing FMIS activities are sufficiently focused on the design of basic TSA processes that improve cash management.

Although there may be country specific variations, the TSA operations are usually managed by the Central Treasury (CT) or Accountant General (AG) of the Ministry of Finance. A secure interface between the FMIS and Central Bank (CB) systems is used to automate the TSA operations, based on a specific legal and regulatory framework. The TSA accounts and the interbank payment systems are usually managed by the Central/National Bank. Commercial banks and other government entities may also be involved in the TSA operations. Although this toolkit is focused on a centralized TSA model, the proposed methodology can be applied to decentralized TSA arrangements as well. Also, the institutional structures of the MoF may not include a designated unit (like Central Treasury) responsible for all core functions (receipts, disbursements, reconciliation and cash management). In such cases, this assessment can be performed by all relevant units to clarify the current status, and the MoF management may wish to consider possible improvements in such fragmented structures (for effective separation of duties) as a part of PFM reforms.

The toolkit includes 65 questions in five categories as key indicators about the reliability and integrity of TSA operations, and underlying government payment systems. A risk and controls review is embedded in this assessment to analyze the information systems, procedures and operational environment. Several financial and information security audit standards/guidelines were used as references while developing this toolkit ([Annex 1](#)), in addition to the knowledge and experiences of the practitioners on the design and implementation of TSA operations in World Bank funded FMIS projects. The scoring of features is included to measure the current status of TSA operations and identify gaps consistently. This assessment questionnaire (checklist) is expected to provide a quick feedback to all stakeholders involved in TSA operations on several key aspects, and the discussions on each of these features to determine the impact of FMIS and TSA on the management of receipts and payments to support cash management improvements is far more important than the scores themselves.

The TSA principles and preconditions, rapid assessment methodology, and possible options to perform this assessment are presented in the following chapters. The metrics used in evaluating the current status of TSA operations, and the template that can be used for the preparation of the rapid assessment report, are also explained. Finally, several sample forms are presented as annexes to clarify the type of documents and systems reviewed during such an assessment.

## TSA Principles

The main purpose of TSA implementation is to maximize the use of cash resources through concentration and reduction in float costs. The TSA solutions are designed to capture detailed information about the government's cash resources and spending [on a daily basis](#). However, it is not enough to simply capture timely information on cash balances and flows, if balances are not immediately available to the Treasury (because of a lack of formal authority, or due to lengthy accounting and transfers/payment processes). Also, the ability to forecast cash inflows and outflows and resultant balances on the TSA is essential in improving cash management. It should be noted that the FMIS platforms can provide reliable information through properly designed TSA interfaces on most of these key aspects.

There are a number of ways to implement the TSA depending on country specific conditions (regulations, banking system, electronic payment system (EPS) arrangements, etc.). In many countries, “[centralized TSA operation](#)” is preferred to monitor the daily collections and spending promptly and cost effectively ([Annex 3](#)). In order to achieve this, a reliable TSA infrastructure<sup>1</sup> needs to be established before the implementation of FMIS solutions (it is usually more difficult and costly to introduce TSA after the development of FMIS), based on a mutually agreed [TSA Protocol](#)<sup>2</sup> (between the CT and the CB). Daily data exchange through secure linkages with the banking system, and the EPS operations is crucial to ensure timely and reliable reporting on all government revenues and expenditures. Coverage of the Central Bank's branch network is also a key consideration.

In centralized TSA model, the Central Bank is expected to provide a number of payment services (disbursements to beneficiaries via RTGS and/or ACH; real-time access to account statements) beyond simply just the custody of the TSA accounts and bulk transfers of funds. In some cases, the Central Bank may be willing to disburse high-value, low-frequency payments via RTGS, but unwilling to process ACH files (e.g. for payroll) or to print cheques. Therefore, the TSA model will likely involve commercial bank distribution accounts for lower-value payments.<sup>3</sup> Other banking services that should be considered include: provision of bank statements/online access to transaction data and account balances; foreign currency payments – sourcing the required forex and delivery to the (generally offshore) beneficiary; letters of credit; electronic collections (e.g. point-of-sale, payment gateways for online payments); purchasing or payment card schemes for lower value payments (petty cash, fuel cards, etc.). In some countries the Central Bank may also perform a ‘quasi’ cash management role on behalf of the government, and provide a short-term lending or overdraft facility to Government, and this may complicate negotiations on the TSA arrangements.

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<sup>1</sup> The term ‘TSA infrastructure’ refers to the structure of bank accounts in the TSA model and the receipt and disbursement flows through these accounts, together with necessary system interfaces and relevant ICT components. It is strongly recommended that this model is decided prior to the configuration of the FMIS, and that the procedures in support of the TSA are implemented alongside the FMIS implementation.

<sup>2</sup> Initially, such a protocol may include the design of receipt and disbursement processes based upon an assessment of the banking services required by government, and identify which of those services the Central Bank is able to provide to the government. The protocol can be expanded through an iterative procedure – the proposed receipts and disbursement processes will determine the banking services government requires, which will in turn guide the appropriate TSA model and the structure of bank accounts. Also, the time that will be required to fully negotiate the agreement between the CB and Government covering all aspects should not be underestimated.

<sup>3</sup> If the Central Bank is unwilling to provide some or all of these services, then it may be determined that a national or commercial bank is better placed to take custody of the TSA (with appropriate risk management and collateralization to mitigate against the risk of loss of public funds).

In general, the Central Treasury (CT) operates the TSA for managing all public expenditures in “client account” mode, where the Central Bank (CB) executes all payments (indirect participation) on behalf of the CT. Alternatively, the CT may become a direct participant of the interbank systems (RTGS<sup>4</sup> and ACH<sup>5</sup>) operated by the CB (“correspondent account” mode), if specific conditions can be met (related to the information security, procedures, authorized personnel, and oversight mechanisms). To monitor the collection of revenues, the CT usually receives daily information from agent (commercial) banks (sometimes through CB), or revenue administration(s) about the details of transactions through interfaces between the FMIS platform and these external systems.

## TSA Preconditions

The Treasury Single Account preconditions are summarized below (Table 1). This table can be used to provide an overview of the current status of TSA as a part of the rapid assessment report. Country specific technical and adaptive (non-technical) challenges can be listed under eight categories to highlight the priorities in developing or improving the TSA infrastructure.

**Table 1:** TSA preconditions

#	TSA Preconditions	Current Status
1	Legal and regulatory requirements for TSA operations	+ List existing legislation. Any TSA protocol between the CT and CB? - Highlight the areas that need to be improved.
2	Technical requirements / Reliable ICT infrastructure	+ List existing CB and CT data centers and ICT infrastructure to support secure daily operations. - List all possible improvements.
3	Fully operational interbank settlement systems	+ ACH is operational since? RTGS is operational since? + Which entity is the operator of these systems? - Improvements in interbank system operations.
4	Interface between the CT/FMIS and the CB information systems (RTGS/ACH)	+ Status of network connection and TSA interface. - Possible improvements in CT payment center.
5	A comprehensive chart of accounts (CoA) to capture relevant details consistently	+ Status of unified CoA to support centralized TSA. - Possible CoA improvements for TSA operations.
6	An inventory of existing Bank accounts to be used in FMIS and TSA operations	+ Existence of a shared database on participant bank accounts managed by CT (and CB). - Any gap in the development of database.
7	Capacity development of TSA users	+ Adequate MoF/CT capacity. - Additional capacity and training needs.
8	Political support	+ Manage the participation of agent bank(s) in TSA. - Risks in ensuring high level commitment to TSA.

Source: World Bank data.

Note: TSA preconditions are based on model the suggested in Pattanayak, 2010.

It should be noted that a key consideration is legal authority for opening official bank accounts<sup>6</sup> (which is also critical in determining ability to prepare and maintain a reliable inventory of bank accounts). A further

<sup>4</sup> RTGS = Real Time Gross Settlement system (see Annex 3).

<sup>5</sup> ACH = Automated Clearing House solution (see Annex 3).

<sup>6</sup> The IMF paper indicates that these pre-conditions does not refer to Banking and Payment System Laws, but rather to the PFM framework (e.g. that the legal authority for opening official bank accounts is vested in the MoF).

consideration is whether the legal framework (which may include procurement laws and regulations) provides for a centralized procurement of banking services by the Treasury.

Regarding the ICT infrastructure, this preliminary assessment can be used to identify the constraints to sustainability as well (e.g. the capacity of IT teams to stay abreast of developments and emerging threats; the existence of a maintenance plan for ICT infrastructure and availability of budget funds).

The primary information system of the CB is its own Core Banking System. While payment systems (RTGS and ACH) provide reports of transactions, their primary purpose is funds transfer. A key question in the design of the interface between the FMIS and the Central Bank is whether the interface is just between the FMIS and the CB's Core Banking System (with the CB's core banking system interfaced to RTGS/ACH), or if there will be a direct interface from the FMIS to RTGS and/or ACH (with the transaction information from these systems reflected back to the CB's Core Banking System for maintenance of account positions and production of bank statements for Government's accounts).

It is also important to note that, a TSA arrangement has been achieved without a fully automated interface between the FMIS and CB systems in some countries.<sup>7</sup>

In relation to TSA, the key feature of the Chart of Accounts (CoA) is that any information currently provided through separate bank statements is now to be reported through the CoA classification structure. This must be recognized from the outset in designing the CoA for FMIS. The CoA should support a hierarchical structure to exercise budgetary controls at a higher-level, and manage all expenditures to be accounted for at lower levels.

The inventory of bank accounts should cover all accounts, even those that will be closed during implementation of the TSA. The ability of the MoF to construct a comprehensive inventory will rest upon the legal framework, and whether authority to open bank accounts is given solely to the MoF. If a reliable inventory of bank accounts cannot be compiled, this in itself is cause to move ahead with the TSA reform (that there are government bank accounts that are hidden or unknown to the MoF is a key challenge to transparency and suggests weakness in fiscal data). New processes should ensure that funds are not transmitted to hidden or unknown government bank accounts, and only to those accounts that are recognized as part of the TSA structure.

The capacity development of the TSA users should commence at the initial stages of reforms, and continue during and after implementation.

The political support is a continuous issue through the TSA reform and there should be a communications strategy that sustains political support through the implementation, to overcome resistance due to perceived power arising from control of own bank accounts.

As with the protocol with the Central Bank, many of these preconditions may suggest related reforms that could be undertaken to improve TSA arrangements. However, this should not prevent progressing on implementation of cash centralization through TSA solutions.

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<sup>7</sup> An example of this model is Afghanistan - the paper-instructions printed from FMIS are signed by the Treasurer and submitted to the CB. A checklist of payments is also submitted separately to the CB, and all instructions received are verified against the checklist prior to being processed. While an automated interface is optimum to prevent risk of error, a centralized TSA can still be implemented without such an interface – regular, timely bank reconciliation and follow up on discrepancies are (as in any model) critical.

## TSA Roles and Responsibilities

Regardless of the mode of TSA operations (direct/indirect participation), there should be clear separation of **roles and responsibilities** for the treasury, banking and accounting functions, as well as the oversight of payments and settlements. Below template can be used to clarify these country specific roles and responsibilities (Table 2) for centralized TSA model, as a part of the rapid assessment report. For decentralized TSA models, other key actors should also be considered (such as revenue collectors and spending agencies, as well as the debt management function if it is outside the CT).

**Table 2:** Roles/responsibilities for key TSA functions

<b>TSA Functions vs. Responsibilities</b>	<b>Central Treasury/ Accountant General</b>	<b>Central/National Bank</b>
<b>Treasury</b> operations (management of payments)	CT (FMIS)	-
<b>Banking</b> functions (payment controls and settlements)	CT (FMIS) TSA interface	CB (RTGS / ACH) interbank systems
<b>Accounting</b> (reconciliation and reporting)	CT (FMIS GL)	CB (GL)
<b>Oversight</b> of payments and settlement systems (financial + information security controls)	External Audit	CB

Source: World Bank data

## Reliability and Integrity of TSA Records

The reliability and integrity of TSA operations depend on several key requirements related with the daily recording / reporting of all revenues (receipts) and expenditures (payments):

- ▶ **A bank statement containing all the details about the flow of funds in the TSA should be generated directly by the Central Bank information systems, independently from the Central Treasury** (as the organization managing payments). Such bank statements should be available to the CT for automated reconciliation through the FMIS General Ledger (GL) module on a daily basis. If the Central Treasury is a direct participant of the interbank payment systems, there must be absolute assurances that such bank statements are generated directly from the interbank payment systems, and supported by consistent information from the Central Bank GL.
- ▶ **FMIS accounting module (GL) should maintain full cash book records for the TSA bank accounts.** All TSA transactions must be accounted for in the FMIS by the appropriate source (e.g. it may be the revenue collectors, rather than the CT, that enter the transactions for revenues deposited to the revenue transit accounts in commercial banks, but then the CT accounts for the sweeping of the balances from these transit accounts to the accounts in the CB).
- ▶ **Each TSA transaction must contain a unique identifier which can be used to link the payment or receipt to the accounting entries in the CT's FMIS GL.** The CT should be able to reconcile the CB statements on the CT's bank account balances and the FMIS GL data, regularly (daily) and promptly, benefiting from underlying systems.
- ▶ **No manual interventions.** All processes (from initiation to final payment and reconciliation) should be automated and run on secure platforms.

These requirements must be audited on a regular basis.

Some of the key questions related to the TSA preconditions, as well as the risks and controls are listed in [Annex 4](#).

## Methodology

The TSA assessment toolkit is composed of **65 questions** grouped under five categories:

1. Legal and regulatory framework of TSA operations (11 questions)
2. TSA processes and interbank systems (25 questions)
3. Capacity and competencies (7 questions)
4. Information security controls (14 questions)
5. Oversight mechanisms (8 questions)

A simple **rating** scale (0 to 4) is used for all questions/statements, and the total score is converted into a **grade** (0 to 100) as an indication of the country's performance in TSA operations/payment systems.

Rating:     0 = **Non-existent** (Lack of any recognizable process. Activity not yet planned/established.)  
              1 = **Initial / ad-hoc** (Issue recognized. Activity planned and approved for implementation)  
              2 = **Defined process** (Activity implemented partially)  
              3 = **Managed and measurable** (Activity effectively operational)  
              4 = **Optimized** (Activity refined to the level of international good practice)

### Guidance on Ratings

- **Rating "4"** means that the subject activity related with the interbank payment systems and TSA processes have been refined to the level of international good practice with continuous monitoring and improvements. Information systems: There is an integrated FMIS solution to automate all critical aspects of budget execution, including TSA and performance monitoring, providing tools to improve quality and effectiveness in PFM.
- **Rating "3"** indicates that there are areas in which a country is doing well in interbank payment systems and TSA. It is possible to monitor and measure compliance with procedures and to take action where processes appear not to be working effectively. Processes are under constant improvement. From information systems perspective, FMIS supports the TSA operations fully.
- **Rating "2"** indicates that there are areas for improvement. Government should consider devoting sufficient resources to ensure that improvements can be quickly made and strategies developed for effective implementation of necessary improvements. There are standardized procedures (automation of existing practices) communicated through training. It is, however, left to the individual to follow these processes, and it is unlikely that deviations will be detected. FMIS supports the TSA operations partially (for example monitoring the account balances, without supporting automated payments).
- **Rating "1"** means that the entity has recognized that the issues exist and need to be addressed. There are no standardized processes; instead there are ad hoc approaches that tend to be applied on an individual or case-by-case basis. Government should consider devoting sufficient resources to ensure that improvements can be quickly made and strategies crafted for effective implementation. From information systems perspective, limited capabilities exist for automation of processes.

- Rating “0” indicates lack of any recognizable processes. The activity requires immediate attention and clear strategy with high-level political commitment. While it does not necessarily imply from a low rating that a government has poor public financial management (PFM) systems, it usually does indicate a key concern that requires immediate attention.
- Rating “n/a” indicates that the activity cannot be measured and scoring is not applicable. In such cases, clarifications should be provided and such activities are not included in the calculation of ratings.

### Assessment of performance

The rating calculations suggested as a part of this assessment are expected to assist countries in determining the strengths and weaknesses in five specific categories listed above.

The **percentage rating** (0 to 100) for each category (except “n/a” scores) is calculated from:

$$\text{Rating of a category} = \frac{\sum \text{Points scored under the category}}{(\# \text{ of activities under the category} - \text{total \# of "n/a"}) * 4} * 100$$

The **total rating** is calculated by adding all scores (except “n/a”) in all five categories (0 to 100):

$$\text{Total rating} = \frac{\sum \text{Points scored under all categories}}{(65 - \text{total number of "n/a"}) * 4} * 100$$

The following **grades** are used to indicate the overall performance based on the total rating:

Very Weak	below 30%
Weak	30% - 49.9 %
Average	50% - 69.9 %
Good	70% - 89.9%
Excellent	above 90%

The minimum score for an acceptable performance is “Average”, according to above grading scale.

Finally, in order to facilitate better understanding, additional information can be provided in the “Comments” column of the questionnaire:

- Challenges that the country faces in a particular area;
- Source of information (URL) for a specific topic;
- Relevant reforms or improvements expected;
- Key stakeholders involved; and
- Other relevant information.

The remaining sections of this report include the description of TSA rapid assessment approach and the list of statements/questions used for verifying the processes and controls<sup>8</sup>.

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<sup>8</sup> **Control** is defined as the policies, procedures, practices and organizational structures designed to provide reasonable assurance that business objectives will be achieved and undesired events will be prevented or detected and corrected (as defined in CoBIT).

## How to organize the TSA rapid assessment?

This rapid assessment can be performed in two ways:

- ▶ **Self-assessment** (usually in two days),
- ▶ **Joint assessment** (one week) of the TSA operations through site visits, interactions with related CT and CB units, and a workshop to discuss the results, with support from the World Bank team.

In both cases, two dedicated teams from the Central Treasury/MoF and the Central/National Bank (sometimes by inviting the commercial banks and solution providers involved in TSA as well) are expected to meet and review the questions together, collect evidence on specific aspects (legal framework, practices, competencies, information security, and oversight), and assess the situation jointly to produce a mutually agreed assessment report. The World Bank team can join to assist in this process, and provide guidance when necessary.

### Suggested approach

1. Identify the team members who will take part in the rapid assessment of TSA operations (managers, operational staff, technical specialists, etc.), and designate the team leaders of the MoF/Treasury and Central/National Bank sides (include the list all participants as a part of the rapid assessment report).
2. If there is an ongoing FMIS contract (TSA implementation in progress), the teams are expected to review the functional and technical requirements of the TSA interface and operations, as outlined in the FMIS contract (also attach these requirements to the rapid assessment report). FMIS supplier representatives can be invited to relevant discussions during this process.
3. Depending on the type of assessment (self-assessment or joint assessment) organize a kick-off meeting with the teams to explain the process, introduce the questionnaire, and expected results. Prepare a work plan to perform the assessment and organize necessary meetings, as necessary.
4. Collect necessary information and evidence through interactions with related officials/units. Fill the questionnaire, answering all questions and providing ratings based on the evidence. Note all key findings and relevant evidence in the comments section of each question.
5. Organize a workshop with the participation of all stakeholders involved in the rapid assessment to discuss the findings and recommendations.
6. Following the completion of this review process by going through all 65 questions in the questionnaire, a TSA Rapid Assessment Report can be prepared, benefiting from the template attached in [Annex 2](#) of this guidance note.

This TSA rapid assessment is intended as a joint review of several important conditions, which are expected to be substantially met to ensure a fully operational and reliable TSA interface. Most of the technical capabilities can be developed in a relatively short time, as a part of the FMIS implementation. However, high level political commitment is required for the resolution of TSA related adaptive (non-technical) challenges in many economies.

## TSA and Payment System Rapid Assessment Questionnaire

The results of rapid assessment are presented below in five categories. “Comments” column includes the links to relevant web sites, as well as the summary of key findings and deficiencies observed.

**Table 3:** TSA Rapid Assessment Questionnaire

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
1	Legal and regulatory framework of TSA operations			X1 %	
1.1	Central Treasury legislation <sup>A</sup>				Please indicate the Central Treasury URL here
	Clear legal and regulatory framework for Treasury Single Account operations has been established with appropriate and effective sanctions for non-compliance.	Q.1	Legal and regulatory framework for FMIS operations is in place.	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)
		Q.2	TSA protocol signed between the CT and CB (legally binding).	0...4	+ Existing TSA Protocol (ref. no, date, and URL, if published) - Any draft Protocol or plans to prepare? (if not available yet)
		Q.3	TSA instructions/circulars describing the details of rev / exp processing are in place.	0...4	+ Existing TSA Instructions (ref. no, date, and URL, if published) - Any draft Instruction or plans? (if not available yet)
		Q.4	Legal basis for the operations of Electronic Payment Center (EPC) is in place.	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)
		Q.5	Agreement with the CB to maintain CT TSA bank accounts is in place.	0...4	+ Existing TSA agreements (ref. no, date, and URL, if published) - Any draft agreement or plans? (if not available yet)
		Q.6	Agreement with the CT and Agent Bank(s) for TSA operations is in place.	0...4	+ Existing TSA agreements (ref. no, date, and URL, if published) - Any draft agreement or plans? (if not available yet)
1.2	Central Bank legislation <sup>B</sup>				Please indicate the Central Bank URL here
	Clear legal and regulatory framework for interbank systems has been established with appropriate and effective sanctions for non-compliance.	Q.7	Banking law and regulations are in place	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)
		Q.8	Electronic Signature law / regulations are in place.	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)
		Q.9	RTGS law / regulations are in place.	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)
		Q.10	ACH (BCS) laws / regulations are in place.	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)
		Q.11	Laws/regulations for oversight of payment & settlement systems are in place.	0...4	+ Existing law(s) (ref. no, date, and URL, if published) - Any draft law or plans to prepare? (if not available yet)

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
2	TSA processes and interbank systems			X2 %	
2.1	Segregation of key TSA functions <sup>C</sup>				
	Segregation of key TSA duties (payment management and control, settlements, and accounting/reconciliation) is enforced through organizational structures, user access in the treasury/payment systems and procedural documents.	Q.12	Payment management functions are executed by the Central Treasury through automated processes supported by FMIS.	0...4	+ Summarize existing payment management processes - Identify deficiencies
		Q.13	Payment control functions are performed by CT through automated processes supported by FMIS.	0...4	+ Summarize existing payment control processes - Identify deficiencies
		Q.14	Payment control functions to check compliance with the Banking legislation are performed by CB through automated processes supported by CB information systems.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.15	Accounting functions for TSA operations (reconciliation and reporting) are performed by CT through automated processes supported by FMIS.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.16	Accounting of the TSA operations (recording all daily flows and providing daily bank statements) is performed by the CB through automated processes supported by the CB information systems.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.17	<b>Oversight</b> functions for payment and settlement systems (financial + information security controls) are performed by the CB through automated processes.	0...4	+ Summarize existing processes - Identify deficiencies
2.2	Daily recording and reporting of TSA transactions <sup>D</sup>				
	All TSA transactions related with budget revenues (receipts) and expenditures (payments) are recorded and reported through CB payment and settlement systems, as well as the CT's FMIS solution on a daily basis.	Q.18	RTGS system is capable of recording/reporting the details of all TSA payments on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.19	ACH (BCS) system is capable of recording/reporting the details of all TSA payments on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
		Q.20	CB GL captures all flows in TSA bank accounts through their accounting system/GL on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.21	Agent Banks transfer all revenues to the CT's designated TSA bank account at the CB on a daily basis through online connections to RTGS/ACH.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.22	Central Treasury submits all payment requests in required formats through CT-CB TSA interface from a secure electronic payment center through automated processes supported by FMIS on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.23	CB sends bank statements from the RTGS and ACH about the details of all TSA transactions through automated processes on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.24	CB sends bank statements from the CB General Ledger about the flows in TSA bank accounts through automated processes on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.25	Reconciliation of the CB (and Agent Bank) bank statements is performed by the CT through the FMIS General Ledger (GL) module on a daily basis.	0...4	+ Summarize existing processes - Identify deficiencies
		Q.26	Each TSA transaction must contain a unique identifier which can be used to link the payment or receipt to the accounting entries in the CT's FMIS GL.	0...4	+ Summarize existing processes - Identify deficiencies
2.3	Audit trails <sup>E</sup>				
	Audit trails are enabled and effectively used in CB and CT information systems	Q.27	"Audit trail" is enabled in CT FMIS databases and effectively used.	0...4	+ Summarize current status - Identify deficiencies
		Q.28	"Audit trail" is enabled in CT Electronic Payment Center (EPC) databases (in case of indirect participation) and effectively used.	0...4	+ Summarize current status - Identify deficiencies

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
		Q.29	"Audit trail" is enabled in CB RTGS platform and effectively used.	0...4	+ Summarize current status - Identify deficiencies
		Q.30	"Audit trail" is enabled in CB ACH (BCS) platform and effectively used.	0...4	+ Summarize current status - Identify deficiencies
		Q.31	"Audit trail" is enabled in CB accounting/GL operations and effectively used.	0...4	+ Summarize current status - Identify deficiencies
2.4	Inventory of bank accounts				
	An inventory of existing Bank accounts to be used in FMIS and TSA operations exist and regularly updated	Q.32	CT FMIS has an inventory of all Bank accounts to be used in TSA operations and this is synchronized with the CB inventory.	0...4	+ Summarize current status - Identify deficiencies
		Q.33	CB has an inventory of all Bank accounts to be used in TSA operations.	0...4	+ Summarize current status - Identify deficiencies
2.5	Transaction level controls				
	All transaction level controls are performed as a part of the oversight role on payments and settlements	Q.34	CB has RTGS/ACH payment system checklists managed through automated processes and reports the results of all transactions in well-defined formats (SWIFT).	0...4	+ Summarize current status - Identify deficiencies
		Q.35	RTGS and ACH payment controls include checking the bank accounts against the "black list" maintained by the CB.	0...4	+ Summarize current status - Identify deficiencies
		Q.36	Central Treasury submits all payment orders electronically from FMIS to RTGS/ACH, without any manual intervention. CB disables manual entry mode for CT.	0...4	+ Summarize current status - Identify deficiencies
3	Capacity and competencies			X3 %	
3.1	CT capacity				
	CT units (electronic payment system and IT) have adequate number of trained staff to manage TSA operations	Q.37	For each TSA related position, there is a job description specifying the duties of the position, reporting lines, delegations of authority and qualification requirements.	0...4	+ Summarize current status - Identify deficiencies

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
		Q.38	Total number of authorized personnel to manage TSA operations is adequate compared to the volume of transactions and intensity of work.	0...4	+ Summarize current status - Identify deficiencies
		Q.39	The CT staff is experienced in the operation of EPS and can execute TSA transactions on the interbank payment systems securely.	0...4	+ Summarize current status - Identify deficiencies
3.2 CB capacity					
	CB units (payment systems and IT) have adequate number of trained staff to manage interbank payment systems	Q.40	For each interbank payment system related position, there is a job description specifying the duties of the position, reporting lines, delegations of authority and qualification requirements.	0...4	+ Summarize current status - Identify deficiencies
		Q.41	Total number of authorized personnel to manage payment systems is adequate compared to the volume of transactions and intensity of work.	0...4	+ Summarize current status - Identify deficiencies
3.3 ICT infrastructure					
	ICT infrastructure is capable of handling the workload to support full scale centralized TSA operations	Q.42	CT data center is well prepared to manage all TSA operations and store the details of all transactions.	0...4	+ Summarize current status - Identify deficiencies
		Q.43	CB data center is well prepared to handle all TSA transactions and store relevant details.	0...4	+ Summarize current status - Identify deficiencies
4	Information security controls <sup>F</sup>			X4 %	
4.1 CT information security controls					
	Information security controls are actively used in the CT information systems	Q.44	Authentication and authorization (type of digital signature used; storage of the digital certificates issued)	0...4	+ Summarize current status - Identify deficiencies
		Q.45	Privileged access (who has privileged access to FMIS and electronic payment center databases)	0...4	+ Summarize current status - Identify deficiencies

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
		Q.46	Data security and integrity (solutions for secure data transfer + encryption of data in transit)	0...4	+ Summarize current status - Identify deficiencies
		Q.47	Network and web application firewalls (solutions for reviewing logs, restricting access)	0...4	+ Summarize current status - Identify deficiencies
		Q.48	Password for all user types	0...4	+ Summarize current status - Identify deficiencies
		Q.49	Physical security (access control and data center security)	0...4	+ Summarize current status - Identify deficiencies
		Q.50	Backup and storage (all transactions for the last 5 years stored actively in databases; older records are archived; who maintains TSA records)	0...4	+ Summarize current status - Identify deficiencies
<b>4.2 CB information security controls</b>					
	Information security controls are actively used in the CB information systems	Q.51	Authentication and authorization (type of digital signature used; storage of the digital certificates issued).	0...4	+ Summarize current status - Identify deficiencies
		Q.52	Privileged access (who has privileged access to TSA databases and interbank system platforms).	0...4	+ Summarize current status - Identify deficiencies
		Q.53	Data security and integrity (solutions for secure data transfer + encryption of data in transit).	0...4	+ Summarize current status - Identify deficiencies
		Q.54	Network and web application firewalls (solutions for reviewing logs, restricting access).	0...4	+ Summarize current status - Identify deficiencies
		Q.55	Password for all user types.	0...4	+ Summarize current status - Identify deficiencies
		Q.56	Physical security (access control and data center security).	0...4	+ Summarize current status - Identify deficiencies
		Q.57	Backup and storage (all transactions for the last 5 years stored actively in databases; older records are archived; who maintains TSA records).	0...4	+ Summarize current status - Identify deficiencies

Ref.	TSA Assessment Components	Q Ref.	Questions / Statements	Rating	Comments
5	Oversight mechanisms <sup>G</sup>			X5 %	
5.1	Central Treasury is subject to regular review by internal audit, external audit and by peer auditors.	Q.58	Financial/compliance audit of the Central Treasury operations	0...4	+ Summarize current status - Identify deficiencies
		Q.59	IT Audit of the CT information systems (FMIS and electronic payment center)	0...4	+ Summarize current status - Identify deficiencies
5.2	CB is subject to regular review by internal audit, external audit and by peer auditors.	Q.60	Financial/compliance audit of the CB operations	0...4	+ Summarize current status - Identify deficiencies
		Q.61	IT Audit of the CB information systems (payment systems and accounting)	0...4	+ Summarize current status - Identify deficiencies
5.3	IMF Safeguards Assessment is performed regularly as a review of the CB's governance framework	Q.62	The CB governance framework is up to the standards as evidenced by the IMF's Safeguards Assessment	0...4	+ Summarize current status - Identify deficiencies
5.4	PEFA assessment is performed as a core diagnostic to review the overall PFM and accountability performance	Q.63	The TSA operations and the CT/CB practices are reviewed during the PEFA assessment, and related assessments are used to monitor the progress.	0...4	+ Summarize current status - Identify deficiencies
5.5	Financial risks and controls are regularly reviewed and attached to the annual financial system reviews of the CB and CT.	Q.64	The risk and controls report is prepared annually, describing the overall assessment of the CT information systems, the controls and any deficiencies.	0...4	+ Summarize current status - Identify deficiencies
		Q.65	The risk and controls report is prepared annually, describing the overall assessment of the CB information systems, the controls and any deficiencies.	0...4	+ Summarize current status - Identify deficiencies
<b>Overall assessment score :</b>				<b>XX %</b>	

Notes:

<sup>A</sup> Regarding Q.1, a key feature to consider would be whether the MoF/Treasury may define standards for systems used in financial management (and the coverage of this approval - are extra-budgetary entities included) and what responsibilities are vested in the accountable officers in Ministries for maintaining effective financial management systems and internal control frameworks (and therefore in an FMIS architecture). What assurances the MoF/Treasury must provide regarding the operations of the FMIS for comfort of these accountable officers in discharging their duties, and conversely, what requirements the accountable officers are charged with for using the FMIS (e.g. maintaining operating system and virus protection updates on all workstations connected to the network that connects to FMIS; network security – firewalls, monitoring and maintenance of logs; not sharing logons and passwords to both the network and the FMIS with anyone else). If there is a secure government-wide network or intranet, these features may be addressed in the membership to this network (which may be managed by an entity other than the MoF/Treasury). However in many countries FMIS implementation is ahead of government-wide secure network and these issues are addressed during FMIS implementation.

Q.4 and Q.8: This will impact whether procedures can be fully automated through the system, or the transmission of supporting documents / hard copy authorizations are still needed alongside the messages transmitted within the FMIS and from the FMIS to the paying bank. If the legislation governing electronic transactions and communications is in place (or is in the process of being drafted), the FMIS design and banking interface must conform to this legislation to ensure electronic transmissions are of equal legal standing to a paper-based authorization. For example, if the legislation provides for a public key infrastructure, there may be requirement for the certifying authority to be approved by a central regulatory body and therefore the FMIS must deploy certificates from an approved certifying authority. If there are gaps in the legal support for electronic signatures and no legal basis for public-key based electronic signatures, centralized TSA processes may need to include additional controls to address this. For example, the transmission of the payments file from the Treasury to MoF may involve an additional process where key information about the file (e.g. total value of payments, number of payments and a hash total constructed from the sum of the account numbers in the file) is exchanged through a different route (e.g. e-mail, telephone) between the Treasury and the Central Bank before the Central Bank approves the file to be actioned through the payment system.

Q.2 and Q.5: In some cases, these can be covered under a single agreement (the agreement may be developed over time – initially it is important to have an agreement related to the banking services that the CB will or will not provide).

<sup>B</sup> Key clauses in Banking Legislation, Regulations and Circulars that impact the design of the TSA (custody and structure of bank accounts, and receipt and disbursement processes) include:

- Law concerning the Central Bank may specify that the CB has custody of Treasury accounts or is banker / fiscal agent to government;
- The CB Law may specify that CB profits are passed to Government and that the CB is recapitalized by Government in event of a loss (therefore lower risk if custody of the TSA is with the CB);
- The availability of credit from the Central Bank to Government;
- The roles and responsibilities of the Central Bank and Government in respect of issuance and servicing of domestic and external debt;
- Payment system operating hours;
- Cheque Clearing periods;
- Clearing periods for electronic transactions (ACH and RTGS);
- Time periods for return of invalid transactions (e.g. Credit to invalid customer account in receiving bank);
- Handling of mis-directed transactions (e.g. Credit to a valid but incorrect customer account);
- Requirement for commercial banks and other financial institutions to report on government accounts, balances and transactions to the MoF/Central Treasury (as noted above, this also impacts the ability of MOF to effectively prepare an inventory of existing bank accounts).

- <sup>C</sup> Q.13: Payment control functions are not limited to compliance with budget limits, and other important aspects of public expenditure controls should also be considered (e.g. procurement functions, payroll controls, vendor registration, monitoring imprest bank accounts of spending units). If a Commercial Off-the-Shelf (COTS) package is deployed as the basis for the FMIS, these controls may be relatively sophisticated to configure and maintain. Therefore, the set-up should be clearly documented, and responsibility for maintenance of user roles in the system should be clearly assigned for all controls. Similarly, for locally-developed software, the controls environment must be embedded properly in the software functionality and associated data model.
- Q.14: Payment control functions performed by the CB are mainly related to checking invalid payments and returns of instructions and the credit value within the time frames specified in legislation / participant rules.
- Q.15 and Q.16: If the CT is carrying out reconciliations, the CT must be maintaining cashbooks for all TSA bank accounts in the processing of the transactions. In countries where a structure of bank accounts have been used to account for transactions, the maintenance of cash books and reconciliation may be weak (and in some cases, cash books being presented for audit being simply the bank statement with the DR/CRs reversed, as opposed to being maintained). Daily flows must be recorded independently by both the CT and the CB to support reconciliations.
- Q.17: While oversight of payment systems is generally a function of the Central Bank, in some countries, the institutional framework is that an entity independent of the CB is directly responsible for supervision of financial institutions and/or payment systems oversight (although of course the CB will always be an interested stakeholder). Also, the features available in the national payment systems (as opposed to the automation of the oversight of these systems) will impact the design of TSA processes and policies (e.g. can Government collect from and pay to a mobile-money account with a telecom?).
- <sup>D</sup> Q.23: Transaction reports may be provided from the RTGS and ACH, whereas bank statements are generated from the CB's core banking system. Also, it would be preferable that statements are available online, in real-time as opposed to being transmitted daily.
- Q.25: Please note that the system architecture of some COTS packages is that the bank reconciliation is considered a separate module, or part of the cash management module, as opposed to being within the GL module. It is important to ensure that the cash book records used in the bank reconciliation process are complete for any postings to GL bank assets.
- <sup>E</sup> Q.27-Q.31: There are several layers of 'audit trails' that would be required to effectively trace any transaction (on the database itself, as well as on FMIS application software and network access logs). This assessment is mainly focused on the 'audit trails' on relevant databases. A key question is whether the internal and external auditors are fully apprised of the audit trail (database and software, and also IT audit for the network logs), and able to use this to trace the processing of transactions – in some countries, only the FMIS system administrator understands how to use the audit trail function for tracing transactions (and therefore no one has the ability to trace system administration actions). Another key question is whether government has access (internally or through local/regional firms) to a 'forensic' accounting capability that would be able to trace any transaction or data entry made through FMIS. These important aspects should also be noted for a more comprehensive assessment, where applicable.
- <sup>F</sup> The information security controls listed in this part are focused on the electronic payment process. In practice, this extends back to the initiation of purchase orders in spending agencies and changes made to payroll/employees (as these are the first stage payments that will be processed through the TSA). As discussed above, where the network for the FMIS has been implemented by the MoF and enables connections to other local networks maintained by the spending agencies, information security controls must be applied across all elements (including the spending agencies networks which the MoF is not directly responsible for maintaining), not just in the CT or CB.
- <sup>G</sup> Please note that the IMF Safeguards Assessment is only required in countries that are using fund resources, although is encouraged for countries under a staff-monitored program as well.



## Annex 1. References

1. Ali Hashim and Allister J. Moon, "[Treasury Diagnostic Toolkit](#)", World Bank Working Paper # 19, 2004
2. Biagio Bossone and Massimo Cirasino, "[The Oversight of the Payments Systems: A Framework for the Development and Governance of Payment Systems in Emerging Economies](#)", World Bank Report, July 2001
3. BIS-CPSS, "[Central Bank Oversight of Payment and Settlement Systems](#)", Bank for International Settlements (BIS) - Committee on Payment and Settlement Systems (CPSS), July 2005
4. Cem Dener, Joanna Watkins, and William Dorotinsky, "[Financial management information systems : 25 years of World Bank experience on what works and what doesn't](#)", World Bank Study, April 2011
5. [COBIT](#): Control Objectives for Information and related Technology
6. European Court of Auditors, "[The Performance Audit Manual](#)", May 2007
7. European Court of Auditors, "[The Financial and Compliance Audit Manual \(FCAM\)](#)", May 2012
8. IMF, "[Safeguards Assessments of Central Banks](#)" Factsheet, March 2012
9. [ITIL](#): Information Technology Infrastructure Library
10. [Public Expenditure and Financial Accountability](#) (PEFA) Framework, May 2006
11. Sailendra Pattanayak and Israel Fainboim, "[Treasury Single Account: Concept, Design and Implementation Issues](#)", IMF WP/10/143, May 2010
12. The World Bank, "[Payment Systems Worldwide – Outcomes of the Global Payment Systems Survey 2008](#)", FPD Payment Systems Development Group, 2009
13. The World Bank, "[General Guidelines for the Development of Government Payment Programs](#)", FPD Payment Systems Development Group, August 2012

## Annex 2. TSA Rapid Assessment Report Template

Following the completion of the review of TSA operations using the questionnaire, a rapid assessment report is expected to be prepared in order to summarize the key findings and share the conclusions and recommendations with relevant officials. The following report template can be used to present the results in a consistent way.

### Suggested Contents of the TSA Rapid Assessment Report

1. Background *(summary of existing TSA operations, if any, or plans to establish TSA)*
2. Objectives *(expectations from the TSA Rapid Assessment)*
3. TSA Preconditions *(current status of TSA preconditions, using the template provided)*
4. TSA Roles and Responsibilities *(using the template provided)*
5. Approach *(self-assessment or joint assessment, describe the steps followed)*
6. Key Findings *(summarize the key findings in five categories reviewed)*
7. Conclusions *(summarize strengths and weaknesses)*
8. Recommendations *(list specific recommendations to address technical and adaptive challenges)*

Appendix 1. Officials involved in TSA rapid assessment

Appendix 2. List of documents reviewed (provided by the authorities) during TSA rapid assessment

Appendix 3. Summary of the TSA requirements included in the FMIS contract (if any)

Appendix 4. Sample documents and images obtained from the interbank payment systems (RTGS and ACH)

- Standard Payment Order (PO) used for expenditure and revenue transactions (via FMIS).
- Payment Order (PO) created by the CT through the CB's RTGS workstation.
- Report types available from the CB's RTGS workstation.
- Sample report on the RTGS transactions.
- Message format (MT103, as an expanded version of original SWIFT) to transfer CT's payment instructions to the RTGS system.
- Details of a payment instruction from the CB's ACH monitoring terminal.
- The CB's monitoring system to manage the daily ACH settlements.
- The details of daily ACH transactions.

### Annex 3. Overview of Centralized TSA and Electronic Payment Systems

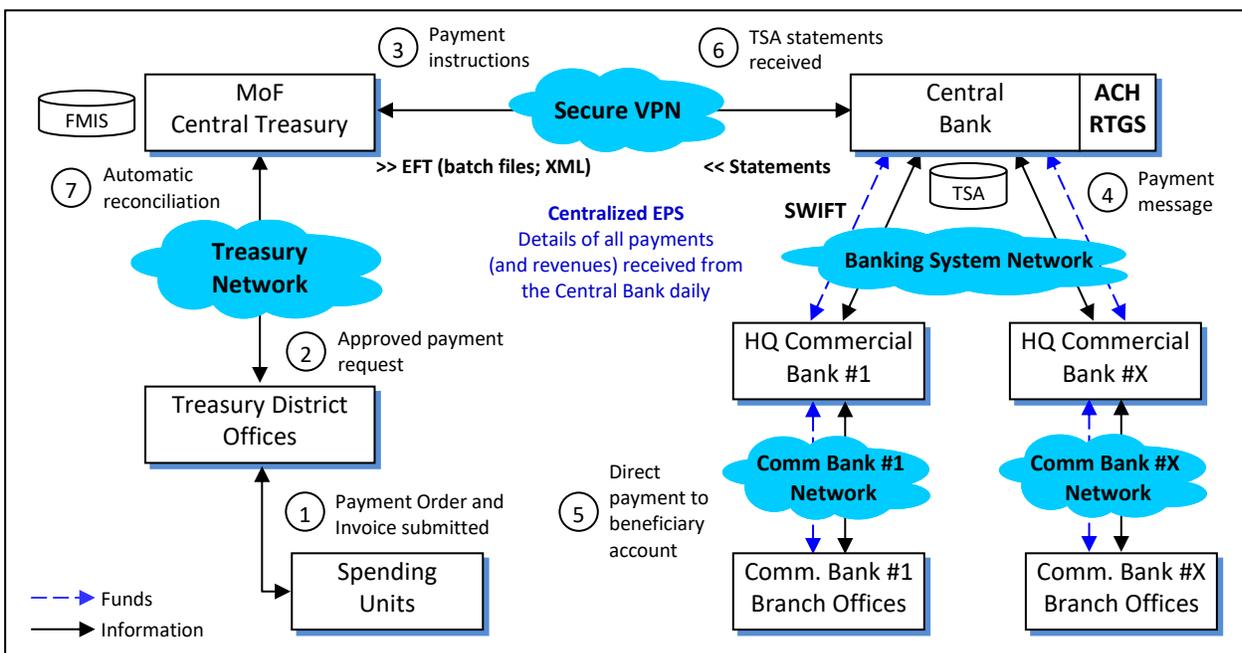
**Treasury Single Account (TSA)** implementation arrangements can be broadly grouped under two categories: **centralized** and **distributed**. The centralized TSA arrangement is designed to capture all revenue and expenditure transactions through a consolidated structure of bank accounts in a single financial institution, generally the central bank. When the PFM operations are highly decentralized and the budget spending units are allowed to retain separate transaction accounts, the distributed TSA arrangement may help in capturing the flows in these accounts by sweeping the balances into the TSA main account at the end of each day. However, it is relatively difficult to capture the details of transactions in decentralized TSA. Therefore, centralized structures are being established in many countries to improve the efficiency and effectiveness of TSA operations through **centralized transaction processing**. Advances in web-based applications and rapid expansion of electronic payment systems are the key enablers supporting the centralized TSA operations.

**Electronic Payment Systems (EPS)** or **Electronic Funds Transfer (EFT)** operates on the basis of two systems:

- The **clearing house system** is where transactions between members of a clearing channel are recorded.
- **Settlement** is the finalization in a transfer of funds, and is the act that discharges the obligations of banks in respect of funds transfers between their depositor accounts. The Central Bank of each country usually acts as the primary settlement agent. Settlement can occur immediately on a gross basis (RTGS) or be delayed on a net basis (ACH).

**Real Time Gross Settlement (RTGS)** systems are funds transfer systems where transfer of money takes place from one bank to another on a 'real time' and on 'gross' basis (**Figure 1**). Settlement in 'real time' means payment transaction is not subjected to any waiting period. The transactions are settled as soon as they are processed. 'Gross settlement' means the transaction is settled on one to one basis without bunching or netting with any other transaction. Once processed, payments are final and irrevocable. In terms of liquidity and systemic risks, high-value payment systems are the most important due to the large value and time sensitive nature of the payments. RTGS solutions are mostly implemented by the central banks. The private sector clearing houses use the **Clearing House Interbank Payment System (CHIPS)** model.

**Figure A3.1: Centralized TSA Operations and Electronic Payment Systems**



Source: World Bank data (Dener et.al., 2011).

**Automated Clearing House (ACH)** system is as a low-value payment system. ACH processes large volumes of credit and debit transactions in batches and at low cost. ACH credit transactions include payroll, pension, and annuity payments. ACH debit transactions include consumer bill payments, such as utility bills, phone bills, and insurance premiums. ACH is mainly operated by the central banks. In some countries the ACH systems are privately owned and operated, but authorized and regulated by the central banks.

The **Society for Worldwide Interbank Financial Telecommunications (SWIFT)** is a global telecommunications network. It provides a strict message format for the exchange of financial information between financial institutions. Messages automatically pass through electronic links built between SWIFT and the local electronic clearing systems in different countries.

There are two key components to SWIFT:

- The SWIFT network, which is used to transmit messages between SWIFT members (banks and other financial institutions); and
- The SWIFT standard messaging format which are internationally-recognized standards for banking and financial messages.

SWIFT format messages may be deployed in the TSA payment processes (and is recommended as use of international standard formats will ease future changes in software applications used), although may not necessarily be transmitted via the SWIFT network, but via other national payment system networks, or, through a direct link between the FMIS or electronic payment system and the central bank. The SWIFT network, however, will generally be the only method for International Telegraphic Transfers.

**What is Electronic Payment Center (EPC)?** In most cases, the Central Bank (CB) side of the TSA interface is more developed and robust, and the operations are based on well-defined protocols for secure processing of electronic payment requests through clearinghouse and underlying payment systems (RTGS/ACH) usually managed by the CB. Each remote participant of the electronic payment system (e.g., MoF/Treasury, agent banks) should satisfy specific technical and functional requirements for a reliable connection to comply with these requirements and become eligible to use specific software.

EPC can be considered as the connection point of this TSA interface on the MoF/Treasury side. It is a secure room (access control and monitoring system; authorized users) hosting the servers/PCs, backup system, and network equipment to connect the MoF side of the TSA interface to the Central Bank systems. In some countries, this secure space is created within the main data center of the MoF as a separate section. In other cases, it may be a small operator and server room located in related organizational unit and securely connected to the main data center. Authorized users of the EPC (usually 3-4 specialists and a manager) are trained by the CB to run a specific software for submitting electronic payment orders to the banking system directly (correspondent mode) or indirectly (client mode) using digital signature/tokens provided. Daily operations are recorded (audit trails) and monitored to ensure that the payment orders received from FMIS are channeled to the CB systems through EPC (no manual interventions), and the statements received from the banking systems are transferred to FMIS for reconciliation on a daily basis (no manual intervention). Thus, EPC is a secure central connection point between FMIS and the CB systems to ensure secure transfer of payment instructions and collecting the results of daily TSA operations electronically. Ideally, all payment orders created by FMIS and submitted through EPC should have a unique identifier, and the CB system should record these transaction IDs. Similarly, all payments executed through RTGS/ACH should have unique IDs and these should be captured back in FMIS database for reconciliation. These unique IDs (one for payment order, one for executed payments) created and captured on both sides of the interface are needed while auditing the systems on both sides to ensure one-to-one match of all records stored in both systems. EPC is also the repository of this information on the MoF side (and they have a backup system to store historic data).

## Annex 4. Questions on TSA Preconditions and Risks

In order to verify the existence of reliable TSA operations and interbank systems, a number of clarifications can be requested from the CT and CB officials during or before this rapid assessment, to be able to complete the questionnaire:

1. How do the CB information systems capture transaction level data of all movements affecting the TSA (for revenues and expenditures)?
2. How does the CB maintain and safeguard transaction level TSA data to be available at any future point for reporting or audit purposes?
3. What procedure will be in place to provide daily bank statements for reconciliation, and who will prepare these?
4. What are the oversight mechanisms established for monitoring the CB banking operations, as well as the CT's treasury/TSA operations (which entity audits treasury and banking operations, and when)?
5. Was there any Information and Communication Technology (ICT) security audit performed on CB and CT information systems by a certified IT auditor recently?
6. Which framework was used in assessing the information systems (COBIT, ITIL, ISO 27001, etc.)?
7. Is "audit trail" enabled in relevant databases during daily operations of the CB and CT?
8. Which information security controls are actively used in the CB and the CT information systems:
  - Authentication and authorization (type of digital signature used; storage of the digital certificates issued)
  - Privileged access (who has privileged access to TSA databases and interbank system platforms)
  - Data security and integrity (solutions for secure data transfer + encryption of data in transit)
  - Network and web application firewalls (solutions for reviewing logs, restricting access)
  - Password for all user types
  - Physical security (access control and data center security)
  - Backup and storage (all transactions for the last 5 years stored actively in databases; older records are archived; who maintains TSA records)
9. Is there an automated process to reflect all daily transactions (revenues + expenditures) in the FMIS GL (how to trace the CB interbank system transactions in FMIS GL with unique identifiers)?
10. What is the operational status of the CT's electronic payment center (number of authorized MoF/CT officials to execute payments, and oversight mechanism)?
11. Data flow diagrams for processing expenditure and revenue transactions through FMIS and CB information systems for TSA operations (describing various steps to be supported by CT's FMIS, CT's Electronic Payment Center, CB's Access server, CB's RTGS/ACH platforms and the CB's GL).
12. List of all message formats (for RTGS and ACH separately) to be implemented for recording / reporting all budget expenditures and revenues, together with a justification of their purpose.
13. The latest version of the TSA protocol and its attachments (including financial and information security controls).
14. The Action Plan for the implementation of TSA system (incl. responsibilities of the CT/CB and FB).

A [risk and controls review](#) is also included in this assessment to analyze the Central Bank and the Treasury information systems, procedures and operational environment.

**Risk factors** that were taken into account during in this review include:

- a) the susceptibility of payment systems and TSA interface to fraud or misappropriation;
- b) complexity of TSA transactions, or degree of reliance on the system to account and reconcile correctly;
- c) the degree of manual intervention, and related potential for error involved in the system;
- d) complexity of user security profiles;
- e) interfaces with any third party systems; and
- f) reliance by the business on the continuing availability of the system.

**Controls:**

Some of the critical control areas included in this review related with the application based controls, information systems, and ICT infrastructure are listed below:

- a) Access to CB payment systems and TSA operations (CT's electronic payment center) are restricted to only those staff whose responsibilities require this access.
- b) Segregation of key TSA and payment system functions are monitored and evaluated regularly.
- c) Input validation to ensure data entry is authorized, accurate and complete.
- d) Regular checks to ensure that all transactions are processed properly.
- e) Output reviews to ensure the completeness, accuracy and validity of reported information and the adequacy of audit trails.
- f) Daily transactions are recorded and reported from both sides of the TSA interface (CB and CT information systems) consistently.
- g) TSA system interfaces are designed and tested to protect the integrity of data exchange.
- h) TSA applications are fully understood by staff and comply with the legislation.
- i) TSA applications are routinely monitored and properly evaluated.
- j) Physical security to provide an environment that protects hardware and software from damage by unauthorized access and environmental effects (e.g. water, extreme temperatures, fire).
- k) Back up of data and offsite storage for system operation recovery.
- l) Recovery of computer operations in the event of a disaster.

## Annex 5. Sample Documents and Images Related to the TSA Operations and Payment Systems

Figure A5.1: Standard Payment Order (PO) form used for expenditure and revenue transactions (Kyrgyz Republic)

ТОЛОО ТАПШЫРМАСЫ ПЛАТЕЖНОЕ ПОРУЧЕНИЕ 592		Дата 5 августа 2011	Жонотуу ыкмасы Способ отправления	Форма коду Код формы 401060
Budget Institution (BI) Code →	ОКПО 00036529	Толоочу Плательщик	Дебет Счет №	1010100037100130
Taxpayer Identifier →	ИНН 00802199610179	Центральное Казначейство	Payer's Bank Account Number	
Social Fund Registration ID →	Регистр. № СФКР 01-00025 1-03	Толоочунун банкы Банк плательщика	<b>PAYER</b>	
Bank Identification Code (BIC) for CT →	БИК(МФО) 44000100	Национальный банк	Кредит Счет №	1299002790006571
	Алуучу Получатель ОАО РСК Банк	<b>BENEFICIARY</b>	Счет №	
	БИК(МФО) 129001	Алуучунун банкы Банк получателя ОАО "РСК Банк"	Beneficiary Bank Account Number	
Amount in Soms →	Сумма соз менен Сумма прописью Двести две тысячи четыреста двадцать два сома 22 тыйын	Сумма	202422-22	
Payment Code (Economic Classification) →	Толоо коду Код платежа 26211100	Толоонун багыты Назначение платежа		
Description →	Доерочное погаше-е по ГДЦБ вкладчикам Кыргызлбанка 200000.00-осн.сумма, 2422.22-проценты. Б/р от 04.08.11г.			
	М.О. М.П.	Кол тамгасы Подписи	Толоочу банктын белгиси Отметки банка плательщика	

Figure A5.2: Payment Order (PO) created by the CT through the CB's RTGS workstation (direct access mode)

RTGS Дата операционного дня     
 Дата: 10 Октябрь 2012 г. 15:11:17 KGT     
 Версия: v2.03.03     
 Экран: TRLSTL003     
 Пользователь: TRJ1/ztashieva help  
SETS= 20121010      PS= 20121010

**Просмотр деталей сообщения**

20120914WO000800000001

подтверждение - S103	
От	44000100
Для	50100100
Приоритет	N - Normal
:20: Референс	719
:23В: Вид платежа	CRED
:32А: Дата, Валюта, Сумма	14.09.2012 KGS 53.802.060,00
:50К: Клиент Отправитель	/1010100037100130 /ЦК
:52А: Банк Отправителя	44000100
:57А: Банк Получателя	10100100
:59: Клиент Получатель	/1010100037500355 /ЦК
:71А: Оплата транзакции	SHA
:72: Назначение платежа	/P/24111100/L/00802199610179/F/01 /E/00036529/S/0100025103/T/01 //Внеш долг-проценты

Статус: COMPLETE

Аудит		
Complete in sets/set	ws/pay/inputServer	14/09/2012, 10:30:54.537 AM
COMPLETE:	TRJ1/mamandykov	14/09/2012, 10:30:54.345 AM
APPROVE:	TRJ1/mamandykov	14/09/2012, 10:30:54.344 AM <b>Подпись</b>
ENTER:	TRJ1/ztashieva	14/09/2012, 10:23:32.747 AM <b>Подпись</b>

Figure A5.3: Report types available from the CB's RTGS workstation (direct access mode)

RTGS Дата операционного дня      Версия: v2.03.03      ЭКран: REPVIE002      Пользователь: TRJ1/ztashieva help

RTGS Дата операционного дня      SETS= 20121010      PS= 20121010

Количество записей в списке : 8

<< Первый    < Предыдущий    Следующий >    Последний >>

№	Тип	Дата	Группа
1	Предварительное отключение	20120914	TRJ1
2	Суммарный отчет	20120914	TRJ1
3	Выписка	20120914	TRJ1
4	Отчет по резервам	20120914	TRJ1
5	Позиция	20120914	TRJ1
6	Окончательное отключение	20120914	TRJ1
7	Итоговый отчет	20120914	TRJ1
8	Выписка по биллингу	20120914	TRJ1

Figure A5.4: Sample report on the RTGS transactions



**Система RTGS**

- ▣ Сессия
- ▣ Администрирование
- ▣ SETS
  - ▣ Справочники
  - ▣ Расчеты
  - ▣ Внешние транзакции
  - ▣ Управление ликвидностью
  - ▣ Отчетность
    - ▣ Отчеты
      - ▣ Просмотр
      - ▣ Внутридневные
    - ▣ Графики
- ▣ Биллинг
- ▣ Система Участника

Национальный банк Кыргызской Республики

14.09.2012 17:20:32

**Выписка по корсчету за 14-09-2012 для Центральное Казначейство (текущий счет)**

№	Ключ транзакции	Референс	Код	Участник	Дт	Сумма Дебета	Кт	Сумма Кредита
			платежа					
1	20120914PD000000000001	713	55301000	10100100	1	11.910.000,00		
2	20120914WO000800000001P1	719	24111100	10100100	2	53.802.060,00		
3	20120914WO001000000001P1	720	55120000	10100100	3	50.000,00		
4	20120914WO001200000001P1	721	55120000	10100100	4	34.000,00		
5	20120914ET0000000000021	1	55211000	10300100	5	1.008.470,00		
6	20120914ET0000000000022	1	55211000	12900100	6	122.467.811,40		
7	20120914ET0000000000023	1	55211000	12900100	7	31.129.364,81		
8	20120914FP000001000031P1	5/525845	32142110	10100100			1	6.000,00
9	20120914FP000001000032P1	82/525847	32142110	10100100			2	916.797,54
10	20120914FP000001000033P1	5319/525848	14221900	10100100			3	149.000,00
11	20120914FP000001000034P1	2048/525849	14235900	10100100			4	500,00
12	20120914FP000001000035P1	3041/525850	52323000	10100100			5	31.900,00
13	20120914FP000001000036P1	3/525851	52313000	10100100			6	10.000,00
14	20120914FP000001000037P1	16132/525853	52323000	10100100			7	3.436,50
15	20120914FP000001000038P1	190/525854	33142210	10100100			8	122.343,08
16	20120914FP000001000039P1	32/525855	52313000	10100100			9	34.400,00
17	20120914WO067100000001P1	1	55211000	10300100			10	104.956,80
18	20120914WO067200000001P1	1	55211000	10300100			11	193.415,11
19	20120914WO067300000001P1	1	55211000	12900100			12	316.382.909,23
20	20120914WO067500000001P1	1	55211000	12900100			13	42.576.633,37
21	20120914WO067400000001P1	1	55211000	10300100			14	43.374,00
22	20120914WO067600000001P1	1	55211000	10300100			15	127.673,00
<b>Итого</b>					<b>7</b>	<b>220.401.706,21</b>	<b>15</b>	<b>360.703.338,63</b>

Страница 1

Национальный банк Кыргызской Республики

14.09.2012 17:20:32

	Сумма Дебета	Сумма Кредита
Начальный остаток		4.588.462.506,86
Конечный остаток		4.728.764.139,28

Figure A5.5: Message format (MT103, as an expanded version of original SWIFT format) to transfer CT's payment instructions to the RTGS system

Дата: 10 Октябрь 2012 г. 15:00:06 KGT
Версия: v2.03.03
Экран: ТРЕНТ103\_002
Пользователь: TRJ1/zashieva [help](#)

RTGS Дата операционного дня
SETS= 20121010
PS= 20121010

**MT103**

**Система RTGS**

- ▣ Сессия
- ▣ Администрирование
- ▣ SETS
- ▣ Биллинг
- ▣ Система Участника
  - ▣ Управление сообщениями
    - ▣ Сообщения
      - ▣ Список
      - ▣ Ввод
        - ▣ MT103
        - ▣ MT202
        - ▣ MT999
      - ▣ Исправить
      - ▣ Отменить
    - ▣ Шаблон

Приоритет : N - Normal ▾

Приоритет:

Для Получателя:  ▾

От: Дебетный счет:  ▾

M :20: Референс

O :13C: Время оплаты, с  Формат: HHMM

O :13C: Время оплаты, до  Формат: HHMM

O :13C: Время отмены  Формат: HHMM

M :23B: Вид платежа  ▾

M :32A: Дата, Валюта, Сумма   ▾

M :50K: Клиент Отправитель

M :52A: Банк Отправителя

БИС:

M :57A: Банк Получателя

БИС:  ▾

M :59: Клиент Получатель

M :71A: Оплата транзакции  ▾

O :72: Назначение платежа

Код платежа

ИНН

ОКПО

Код в Соффонде

Регион Отправителя

Регион Получателя

Figure A5.6: Details of a payment instruction from the CB's ACH monitoring terminal

Детализация сообщения			
Пользователь:	1110010001XX		
Сессия:	2b45ff4b		
Формат:	S	Подформат	Входящие
БИК отправителя:	5020010001XX	БИК получателя:	1110010001XX
Тип:	196	Приоритет:	
Приоритет:	0100	Запрос на доставку подтверждений:	N
Референс:	msg_091012115510	Повторная отсылка	N
Сессия:	0001	Номер документа:	101898
Время отправки:	1157	Дата входящего документа:	1210091157
MIR:	1210095020010001XX0001101898		
Статус:	Успешно отослано		
Блок 4:	:20:86940064/196 :21:74128004120421 :76:STAT/1210091157+0000 NETC/1210091156+0000 21312/2 0/0 21312/2 :11R:102 121009		
Код ошибки:			
Описание ошибки:			
Вверх			
Вниз			
Связанные сообщения			
Закреть			

Figure A5.7: The CB's monitoring system to manage the daily ACH settlements

Рабочее место Администратора Операционного Дня [сессия активна, пользователь: Admin00001XX]

Сессия Операционный день Период Параметр Просмотр Помощь

Операционные Дни

- Загруженные Операционные Дни
  - 09.10.2012
  - 08.10.2012
  - 05.10.2012
  - 04.10.2012
  - 03.10.2012
- Архивные Операционные Дни
- Шаблоны Операционного Дня

Наименование периода Операционного Дня	Авто/Ручной	Статус	Начало/Окон...	Время начала	Время завершения	Фактическое время ...	Фактическое время за...
✓ Период открытия дня	Ручной	Завер...	→ S		08:35:00	08:25:55	08:26:11
✓ Период установки ЛДЧП	Ручной	Завер...	-	08:35:00	08:45:00	08:26:11	08:26:56
✓ Период обмена	Ручной	Завер...	-	08:45:00	13:30:00	08:26:56	10:02:45
● Период обмена	Ручной	Актив...	-	13:30:00	13:31:00	10:02:45	
● Период отказов	Ручной	Неакт...	-	13:31:00	13:51:00		
● Период преклиринга	Ручной	Неакт...	-	13:51:00	14:11:00		
● Период клиринга	Ручной	Неакт...	-	14:11:00	14:21:00		
● Период окончательных расчетов	Ручной	Неакт...	-	14:21:00	14:31:00		
● Период архивирования	Ручной	Неакт...	→ SF	14:31:00	14:51:00		
● Период закрытия дня	Ручной	Неакт...	→ SF	14:51:00			

Синоним	Описание	Инфо	Время события	Тип	Статус	Код Участника	Код ошибки
SE/1349764400	Неудачная проверка подписи...		09/10/12 12:33:20	Предупреждение	Выполнено	105001XXXXXX	SA16
SE/1349764378	Были введены неверное имя ...	1070010002XX(172.22.38.101...	09/10/12 12:32:58	Предупреждение	Выполнено	502001XXXXXX	EA70
SE/1349764363	Были введены неверное имя ...	1070010002XX(172.22.38.101...	09/10/12 12:32:43	Предупреждение	Выполнено	502001XXXXXX	EA70

Готово 12:36:50 09/10/12 NUM

Figure A5.8: The details of daily ACH transactions

Номер запроса	Валюта	Сумма	Платательщик	Банк бенефициара	Клиент получателя
UNI/20344993	KGS	36 000,00	/1350100023027729 /INN/23110197900681 /OKPO/21663710 /SFOND/01-00738	КХ "Муса-Даг"129009 Кантский ФОАО РСК	/1290092790004548 /SUB/600106 Кантский РЭС
UNI/20345026	KGS	420,66	/1358030401640976 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Сокулукский129005 Беловодский ФОАО РСК	/1290051900026481 БМГ ТВС и В
UNI/20345067	KGS	4 743,30	/1352111311946233 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Сокулукский129011 Сокулукский ФОАО РСК	/1290111880001036 Сокулукское отделение Кыргызтелеком
UNI/20345211	KGS	5 529,00	/1358061101637182 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Сокулукский129011 Сокулукский ФОАО РСК	/1290112381110009 /SUB/190305 Сокулук РОК
UNI/20345395	KGS	15 120,00	/1350232013404259 /INN/20710195700770 /OKPO/21663710 /SFOND/01-00738	Сокулукский129011 Сокулукский ФОАО РСК	/1290112390003087 /SUB/210703 Сокулукское районное управление
UNI/20346481	KGS	4 000,00	/1352111309327738 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Каракольский129013 Иссyk-Кульский ФОАО РСК Банк	/1290131880001105 ОАО Кыргызтелеком
UNI/20346068	KGS	80,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346088	KGS	1 050,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346001	KGS	284,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346002	KGS	400,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346005	KGS	600,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346556	KGS	5 000,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346557	KGS	1 000,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346558	KGS	1 000,00	/1350322991382157 /INN/42906200710142 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский129019 Чолпон-Атинский ФОАО РСК Банк	/1290192381210008 /SUB/190403 Иссyk-Кульский РОК
UNI/20346505	KGS	11 351,00	/1350322999243096 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Чолпонатинский128003 Ошский филиал КИКБ	/1280030007947138 ОсОО Кыргыз Мунай
UNI/20346226	KGS	26 403,15	/1352110913596131 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Балыкчинский129014 Балыкчинский ФОАО РСК Банк	/1290142381210088 /SUB/190406 Балыкчинское РОК
UNI/20346268	KGS	6 433,08	/1351150118135790 /INN/41803199910275 /OKPO/21663710 /SFOND/01-00738	Балыкчинский129014 Балыкчинский ФОАО РСК Банк	/1290142381210088 /SUB/190406 Балыкчинское РОК
UNI/20346335	KGS	9 849,95	/1351150118135790 /INN/41803199910275 /OKPO/21663710 /SFOND/01-00738	Балыкчинский129015 Боконбаевский ФОАО РСК Банк	/1290152381210072 /SUB/190404 Тонское РОК
UNI/20346387	KGS	6 599,81	/1352110913596131 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Балыкчинский129015 Боконбаевский ФОАО РСК Банк	/1290152381210072 /SUB/190404 Тонское РОК
UNI/20346453	KGS	840,00	/1350332997010767 /INN/41803199910275 /OKPO/21663710 /SFOND/01-00738	Балыкчинский129014 Балыкчинский ФОАО РСК Банк	/1290142381210088 /SUB/190406 Балыкчинское РОК
UNI/20346477	KGS	420,00	/1350332997010767 /INN/41803199910275 /OKPO/21663710 /SFOND/01-00738	Балыкчинский129014 Балыкчинский ФОАО РСК Банк	/1290142381210088 /SUB/190406 Балыкчинское РОК
UNI/20345576	KGS	46 605,77	/1358030601845441 /INN/40710201110199 /OKPO/27586169 /SFOND/01-00738	Карасуйский125004 ФОАО Халык Банк Кыргызстан-Жа	/1250240045940055 ОсОО "Информ Плюс"
UNI/20344928	KGS	1 076,92	/1351154417551262 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Таласский Ф129022 Бакай-Атинский ФОАО РСК Банк	/1290222381310087 /SUB/190602 Бакайатинский РОК УГНС Бакайатин
UNI/20344969	KGS	1 548,24	/1351154417551262 /INN/01803199710084 /OKPO/21663710 /SFOND/01-00738	Таласский Ф129020 Таласский ФОАО РСК Банк	/1290202381310022 /SUB/190604 Таласский РОК УГНС г.Талас
UNI/20346426	KGS	58 184,00	/1350720024036305 /INN/42408199210037 /OKPO/20639595 /SFOND/01-00738	Кочкорский Ф129027 Кочкорский ФОАО РСК Банк	/1290272381410037 /SUB/190505 Кочкор РОК
UNI/20345489	KGS	29 258,00	/1350812992402164 /INN/41307200010149 /OKPO/21663710 /SFOND/01-00738	Баткенский Ф118002 Ошский ФДКИБ ( ДКИБ-Ош )	/1180000022806223 ОсОО Жаанбай-Ата
UNI/20346178	KGS	21 041,61	/1352110912454056 /INN/41307200010149 /OKPO/21663710 /SFOND/01-00738	Баткенский Ф129041 Баткенский ФОАО РСК Банк	/1290412381710097 /SUB/190902 Баткен РОК
UNI/20346347	KGS	24 550,00	/1352110911761215 /INN/41307200010149 /OKPO/21663710 /SFOND/01-00738	Баткенский Ф129041 Баткенский ФОАО РСК Банк	/1290412381710097 /SUB/190902 Баткен РОК
UNI/20345824	KGS	17 483,26	/1352110913588249 /INN/40812201110017 /OKPO/99999999 /SFOND/99999999	Кызылкийский129056 Кызылкийский ФОАО РСК Банк	/1290562381610021 /SUB/190904 Кызыл-Кия РОК
UNI/20346256	KGS	17 312,64	/1352110913597040 /INN/40812201110017 /OKPO/99999999 /SFOND/99999999	Кызылкийский129056 Кызылкийский ФОАО РСК Банк	/1290562381610021 /SUB/190904 Кызыл-Кия РОК

354 184,39

Используйте "Панель инструментов...", чтобы добавить интересующие команды. (Или используйте двойной щелчок левой кнопки мыши)

APM Operation Monitoring NUM [ ] Период обмена 11:45:16: SA16 - Неудачная проверка подписи текста | Операционный день: 09.10.2012 | 09.10.2012