



BANK OF GREECE

PAYMENT AND SETTLEMENT SYSTEMS DEPARTMENT

**DISCLOSURE FRAMEWORK
FOR
SECURITIES SETTLEMENT SYSTEMS**

Athens, December 2013

Introductory note

The following analysis constitutes the response of BOGS (the Bank of Greece Securities Settlement System) to the Disclosure Framework developed by the Committee on Payment and Settlement Systems of the central banks (CPSS) of the Group of 10 (G-10) and the International Organization of Securities Commission (IOSCO).

The present document describes the state of affairs as at December 2013.

Although every care has been taken for the accuracy of the information presented, the present document does not constitute a legal declaration and can only be used for informational purposes.

Furthermore, any future amendment to BOGS' operational rules could render part of the present information invalid.

I. BASIC INFORMATION

A. What is the name of the SSS?

BOGS (Bank of Greece Securities Settlement System)

B. Where and in which time zone is the SSS located?

BOGS is situated within the Headquarters of the Bank of Greece at:

21, E. Venizelos Ave., GR-102 50 Athens, Greece

The time zone is GMT+2.

C. What functions does the SSS perform?

1. Does the SSS serve as a securities depository and/or provide securities settlement services?

BOGS is the central depository and SSS for all debt instruments in EUR issued by the Hellenic Republic in the Greek market (instruments bearing a “GR” ISIN). In addition, Greek corporate bonds guaranteed by the Hellenic Republic are also deposited and transferred in BOGS. Only book-entry securities are deposited and transferred in BOGS. No safekeeping or vault services are provided for physical certificates.

2. Does the SSS provide cash accounts and/or provide funds transfers in conjunction with securities transfers? If so, in what currencies?

BOGS itself does not provide any cash accounts services while settlement is in central bank money. Instructions for cash transfers, in conjunction with securities transfers, are sent to the RTGS payment system TARGET2 where the participants of BOGS maintain their EUR cash accounts. For those participants of BOGS that do not maintain a TARGET2 account, the Bank of Greece maintains specific payment cash accounts.

3. Does the SSS provide a trade matching service? Do others provide such services for securities settled at the SSS?

BOGS provides matching services for the settlement instructions related to the OTC market. Transactions concluded in regulated markets for Government securities (HDAT, Euro-MTS and BrokerTec) are matched at the trading level.

4. Does the SSS provide a trade netting service (as distinct from undertaking the settlement of securities on a net basis)? Do others provide such services for securities settled at the SSS? In either case, what type of netting (bilateral or multilateral), if any, are performed?

BOGS does not provide a trade netting service.

5. Does the SSS offer a securities lending or borrowing program?

BOGS doesn't offer a securities lending program.

However, in the event of a debit position in the securities account of a participant, the manager of BOGS conducts an auction in the Electronic Secondary Securities Market (HDAT) for the purchase of the securities through overnight buy/sell back transactions by the debtor.

6. Does the SSS provide custodial and/or related services such as the collection of interest, dividends, principal or withholding tax reclamation? Which types of services are provided?

BOGS provides for the collection of interest and redemptions through the link with Clearstream Banking AG-CASCADE. As for Greek government securities, on the date of payment of the interest coupons or maturity of the securities, BOGS proceeds automatically to the relevant entries in the securities accounts and the cash management accounts. Proceeds of redemption of securities pledged are transferred to a special non-interest bearing *blocked* account with the Bank of Greece until the expiry of the collateral unless it has been agreed to return the collateral before expiry. This account is held in the name of both contracting parties. BOGS does not provide any service in relation to withholding tax reclamation as from 2010.

7. Does the SSS act as a central counterparty or principal to transactions with its participants?

BOGS does not act as central counterparty or principal for transactions within its operations.

8. Other? Please specify.

N.A.

D. What type of organization is the SSS?

1. Please indicate whether the SSS is a public sector or private sector entity.

BOGS is a section of the Bank of Greece.

2. Please indicate whether the SSS is organized on a for-profit or non-profit basis.

BOGS operates on a cost-cover basis.

3. What is the legal basis for the establishment of the SSS and for securities transfers made through it?

Under Law 2198/94, as amended by Law 4046/2012, the Bank of Greece has been appointed as Manager of *the System for Monitoring Transactions in Securities in Book-Entry Form* (BOGS). In addition, according to Article 3 of Law 2789/2000 implementing Directive 98/26/EC, as amended by Law 4021/2011 implementing Directive 2009/44/EC, transfer orders and netting are legally enforceable and binding on third parties, even in the event of insolvency proceedings against a participant of BOGS, provided that transfer orders were entered into BOGS prior to the opening of the insolvency proceedings, in accordance with the procedure set forth in the said law. Where transfer orders are entered into BOGS after the moment of opening of insolvency proceedings, they shall be enforceable and binding upon third parties provided that: i) the Manager can prove that it was not aware of the opening of the insolvency proceedings, and ii) settlement has been initiated within the business day, during which the Manager became aware of the opening of the insolvency proceedings.

E. Please describe and provide a diagram outlining the organizational and ownership structure of the SSS?

1. Who are the owners of the SSS?

The owner of BOGS is the Bank of Greece.

2. What entity or entities operate the SSS? Which functions of the SSS, if any, are outsourced to third parties?

BOGS is operated by the Bank of Greece. No functions are outsourced.

3. Does the SSS have a Board of Directors?

No, BOGS is a section of the organizational structure of the Bank of Greece.

F. Please describe the financial resources of the SSS.

There are three different channels of financing BOGS operational costs:

- a) Transaction fees charged to participants.
- b) A managing commission from the issuer of the securities (and for the time being this refers only to the Hellenic Republic).
- c) Any costs still not covered from the above sources are nevertheless covered by the Bank of Greece.

G. Please describe whether the SSS or its operator is subject to authorization, supervision or oversight by an external authority.

By Law, BOGS is subject only to the authorization, supervision and oversight of the Bank of Greece.

See also VIII. B.

II. RULES AND PROCEDURES OF THE SSS

A. Does the SSS maintain a complete list of the rules and procedures governing the rights and obligations of participants and the duties of the SSS?

The rules and procedures governing the rights and obligations of the participants are clearly stated in the document *“Operating Regulations of the System for Monitoring Transactions in Book-entry Securities”*.

1. How can participants obtain a copy of the rules and procedures?

The relevant document, as mentioned in A above, is available at the Bank of Greece website.

2. Does other documentation provided to participants (e.g. user guides) have the same status as the rules and procedures?

The documentation concerning all aspects of BOGS is incorporated within the Operating Regulations and its amendments.

3. Describe the process for changing rules and procedures, including any need for regulatory approval.

By Law, any type of amendment or addition to the above mentioned rules have to be introduced by an Act of the Governor of the Bank of Greece. No further regulatory approval is required.

B. Are the rules and procedures binding on the SSS as well as its participants? Under what conditions and on whose authority can written rules and procedures be waived or suspended by the SSS?

Rules and procedures are binding on BOGS as well as the participants but the Manager of BOGS (the Bank of Greece) is entitled at any time to amend the provisions of the Operating Regulations, on condition that notification of the amendment is given to the participants 8 working days prior to its implementation, unless an urgent amendment is deemed necessary and the urgency of the matter is well grounded. The Manager is committed to consultation with the participants before introducing any essential amendment.

III. RELATIONSHIPS WITH PARTICIPANTS

A. Please describe the types of membership offered by the SSS.

Participation in BOGS shall be subject to the approval of the Bank of Greece, by a Governor's Act. For each participant, BOGS maintains securities accounts and a cash management account in euro within TARGET2 or, in the case of entities not qualifying as credit/financial institution a deposit account in euro with the Bank of Greece. End-investors hold securities accounts with the participants as their clients.

More specifically, the following (apart from the Bank of Greece and the Ministry of Finance) are eligible to participate directly in BOGS:

- Financial or credit institutions of the euro area
- Investment companies either located in Greece or permitted to offer investment services in Greece
- The Hellenic Central Securities Depository (HCSD)
- International Central Securities Depositories
- EU SSSs/CSDs eligible for participating in Eurosystem's credit operations
- Other institutions selected by a Governor's Act

All direct participants in BOGS are subject to the same rules and procedures.

B. Can participants establish accounts for their customers' assets that are segregated from their own accounts at the SSS?

BOGS maintains an omnibus customer account for the clients of each participant. In addition, following the Governor's Act 277, 19/03/00, the participants may open sub-accounts in the name of their individual customers, subject to prior approval by the Bank of Greece. These specific accounts are restricted only to wholesale institutional customers, usually foreign ones. The beneficiaries of these accounts do not benefit from the same rights (and obligations) applicable for direct participants.

All customers' accounts are fully segregated from the securities held by direct participants in their own accounts.

C. Please describe participant requirements for each type of membership.

According to BOGS Operating Regulations and as far as financial institutions are concerned only those eligible for opening a cash account within the TARGET2 are eligible to participate in BOGS.

As for SSSs and CSDs, including ICSDs, they should be based in the EU and be assessed by the Eurosystem.

D. Does the SSS engage in oversight of its participants to ensure that their actions are in accordance with its rules and procedures? If so please describe.

BOGS in itself is not involved in any oversight activities as such. However the Bank of Greece in its function as manager and operator of BOGS ensures that participants act according to its Operating Regulations. The latter state that the Bank of Greece, as Manager of BOGS, has the following principal tasks:

- the examination of applications for participation in BOGS and the opening of the relevant accounts;
- the general supervision of BOGS (including: ensuring its unhindered functioning; monitoring the smooth clearing and settlement of the transactions; informing the participants on daily settled transactions);
- to determine the fees of the services provided;
- to supply aggregated statistical data;
- to undertake studies on the improvement and further development of BOGS.

E. Under what conditions can participants terminate their membership in the SSS? Does this mark the end of all liabilities of the participant? If not, please describe what liabilities could remain.

Participants may voluntarily terminate their participation in BOGS at any time, upon written notification to the manager of BOGS at least 15 (fifteen) days prior to the termination. The manager shall accept such termination request provided that no obligation of the participant towards BOGS or other participants is pending, and shall issue a decision specifying the exact date of termination. In any event, the manager of BOGS shall be responsible for ensuring the fulfilment of the participant's obligations prior to termination.

F. Under what conditions can the SSS terminate a participant's membership in the SSS?

The manager of BOGS may terminate a participant's membership only for a serious reason, such as:

- the participant's failure to fulfil participation requirements;
- unacceptable risks to the operation of BOGS or the smooth operation of the financial market caused by the continuation of such participation, including cases of material or recurrent breaches of BOGS Operating Regulations by the participant, which place the latter's credibility in doubt and jeopardise the smooth operation of BOGS or of the financial market;

Such a decision may be issued at any time, on condition that it is preceded by a written notification to the participant concerned three (3) days prior to termination.

The notification to the participant shall briefly set out the reasons of the termination.

The termination becomes effective as from the date of final settlement of all instructions for transactions of the participant sent to BOGS, at the latest by the date of this termination's announcement. On the date on which the termination comes into force the manager of BOGS returns or transfers the securities to the participant's account provided that there are no liabilities pending either towards other participants or towards BOGS.

Termination occurs *ipso jure* and becomes immediately effective, independently of any notification, in the following instances:

- insolvency, i.e. any collective measure provided for by the law governing the participant's operation which prohibits him from asset disposal or limits his power thereof, such as bankruptcy, special liquidation, resolution, etc.;
- appointment of a trustee;
- liquidation;
- revocation of licence;
- revocation of authorization to participate in BOGS.

Furthermore, the manager of BOGS may suspend (and ultimately terminate) a participant's membership, without prior notification, in the following cases:

- change in the participant's financial situation, which is likely to lead the participant to

suspension of payments or insolvency;

- attachment or seizure imposed on the participant's property, which puts at risk the participant's smooth operation or the fulfilment of its obligations;
- permanent or temporary failure by the participant to fulfil his obligations under the Operating Regulations, which creates an immediate risk to the smooth operation of BOGS;
- decrease in the value of the collateral provided by the participant to BOGS to secure the fulfilment of his obligations;
- any event which can lead the manager of BOGS to reasonably deem that continuation of participation may put at risk the smooth operation of BOGS or of the financial market.

G. Please describe the scope of the SSS's liabilities to participants, including the standard of liability (negligence, gross negligence, wilful misconduct, strict liability or other) the force majeure standard, and any limitation to the scope of liability of the SSS (e.g. indirect or consequential damages). Where are these liabilities and their limitations set out (e.g. in statute or contract)?

The Bank of Greece acting as manager of BOGS has no liability, contractual or non-contractual, except in the cases of wilful misconduct and gross negligence. Moreover the manager shall not be liable for any losses which may be sustained by the participants as a result of events caused by force majeure, such as war, strikes (including those of its own staff), lock-outs, insurrections, rebellions, social unrest, epidemics, power loss, shortage of fuels, raw materials or other shortages, requisitions, fires, floods, impossibility of transport, exercise of sovereign power or acts of the public authorities or other causes independent of its will.

IV. RELATIONSHIPS WITH OTHER SSSs AND COMMERCIAL INTERMEDIARIES

A. Does the SSS maintain linkages (including sub-custodian or cash correspondent relationships) or other relationships with other SSSs?

BOGS maintains a direct bilateral link with Clearstream Banking AG-CASCADE. As investors CSDs, Euroclear Bank and Clearstream Banking S.A. maintain operated direct links with BOGS and LuxCSD, as well as Clearstream Banking AG-CREATION maintain relayed links with BOGS via Clearstream Banking S.A. In addition, the Hellenic Central Securities Depository (HCSD) maintains securities accounts in BOGS in order to achieve final settlement on Government securities transactions executed in the stock exchange.

B. Does the SSS use securities custodians (other than the other SSSs addressed in the previous question) and/or commercial cash correspondents? Please identify the custodians or cash correspondents used and the duties that each performs.

N.A.

C. Please describe the standards used in approving or reviewing relationships with other SSSs, custodians or cash correspondents, including any financial or operational requirements or the presence of insurance or public supervision.

The links mentioned in A above are governed by agreements approved by the Bank of Greece. Furthermore, the links are regularly assessed by the Eurosystem.

D. Does the SSS advance funds or securities to or on behalf of other intermediaries such as issuing or paying agents? If so, please identify the circumstances in which such exposure could arise.

N.A.

E. Please describe the measures in place to protect the SSS and its members against the failure of other SSSs or commercial intermediaries to meet obligations to the SSS, including risk controls, collateral or alternative sources of funds and securities.

The same standards and management risk measures are used with respect to domestic as well as international participants.

V. SECURITIES TRANSFERS, FUNDS TRANSFERS AND LINKAGES BETWEEN TRANSFERS

A. Please discuss whether and how settlement instructions are matched between participants prior to processing by the SSS.

BOGS does not oblige its direct participants to maintain mechanisms for inter-agent matching. The only prior-settlement matching executed by BOGS is the mechanism of matching of double notifications. All notifications referring to OTC transactions between two direct participants require BOGS notification matching. For transactions executed in HDAT, Euro-MTS and BrokerTec, matching of notifications is achieved at the trading level. In the case of mismatching the relevant parties are informed about the problem occurred and required to review the content of the sent notifications. By the end of the settlement day participants are informed about mismatched notifications. Furthermore, the participants can continuously monitor the status of their notifications through the relevant web page of BOGS or through a software console that is connected to the Electronic Secondary Securities Market (HDAT). Upon matching, notifications' instructions become immediately binding for both parties, unless cancellation instructions are provided bilaterally (and in any case prior to final settlement). Matched instructions are binding on the participants.

B. Are securities transferred within the SSS registered?

No registrar is used for the securities deposited in BOGS.

C. Please describe how securities transfers are processed within the SSS.

BOGS accepts and processes notification of transactions in securities for same day or future value date (up to 365 days). Notifications of transactions in securities with retrospective value date are not accepted. Notifications of transactions in securities with value date identical to or later than the redemption date of the relevant securities are not accepted. As the mechanism of matching of double notifications is completed, BOGS examines whether the balance of the securities account of the deliverer of the securities suffices to cover the settlement of the transaction. If it does, in case of Free of Payment transactions the securities involved are transferred immediately to the respective account of the counterparty; in the case of transactions with a cash leg, the Delivery versus Payment mechanism is adopted. The securities involved in the transactions are temporarily blocked in the relevant account and a message is sent to TARGET2 for the settlement of the cash

leg. As soon as BOGS receives confirmation from TARGET2 the securities are transferred to the relevant account and Final Settlement is achieved.

1. Please indicate whether the transfers are processed as debits and credits to member's accounts or via some other method.

Transfers are processed only as debits and credits to participants' accounts.

2. On a continuous (real-time) basis, or in one or more batches?

All the transactions are processed in a continuous basis (RTGS), i.e. DvP model 1 according to BIS definition. In addition, six netting cycles are performed during the day.

3. If continuous, during what hours does the processing occur? If in batches, at what time or times is the processing initiated and completed?

For transactions directly connected to Eurosystem's monetary policy and TARGET's intraday liquidity RTGS settlement is available between 07:30-18:00 CET (Central European Time). For commercial transactions RTGS settlement is available between 07:30-14:30 CET.

The six netting cycles are executed at 07:30, 10:15, 12:30, 13:30, 14:15 and 14:30 (CET), their completion occurs within two minutes after initiation.

4. Do securities settlements occur daily? Please identify securities for which occurs only on specific days of the week or month.

Yes securities settlements occur daily.

There are no securities for which settlement occurs in specific days.

D. Please describe whether final funds transfers in conjunction with the SSS are made as debits and credits to balances held at the SSS, at one or more commercial banks, at the central bank, or via some other method.

Final transfer of funds are made as debits and credits to cash accounts in TARGET2.

E. Is the SSS a DVP system? If so, please describe the DVP model used according to the models outlined in the DVP Report. Please also provide a diagram indicating the timing of events in the

processing of securities and funds transfers in the SSS. Where the SSS provides more than one alternative for settlement processing, please provide a response for each alternative and indicate the relative importance of each alternative.

BOGS uses DvP models 1 and 3 for all the transactions. For the timing of settlements see V.C.3.

1. Are funds transfers and securities transfers processed within the same system or in different systems? If different, how are they linked?

Funds transfers and securities transfers are processed in two different systems, both managed by the Bank of Greece. The communication between these two systems is executed in real time via A2A.

2. When do securities transfers and funds transfers become final?

See V.C. and V.C.3.

3. Please discuss whether participants are notified of securities or funds transfers while they are still provisional, only when they are final or both.

As mentioned in V.A. participants can continuously monitor (in real time) the status of their notifications/transactions through the relevant web page of BOGS.

F. Does the SSS itself “guarantee” funds or securities transfers?

The rights, obligations and liabilities of BOGS are set forth clearly in the relevant Laws mentioned above in I.D.3 as well as in the Operating Regulations (remitted to participants prior to their entry into the Accession Agreement).

BOGS provides real-time Delivery versus Payment (DvP) settlement on a bilateral gross basis as well as netting cycles during the day for all the transactions. It must be noted that, as already mentioned, according to Article 3 of Law 2789/2000, implementing Directive 1998/26/EC, as amended by Law 4021/2011 implementing Directive 2009/44/EC, transfer orders and netting are legally enforceable and binding on third parties, even in the event of insolvency proceedings against a participant of BOGS, provided that transfer orders were entered into BOGS before the opening of the insolvency proceedings in accordance with the procedure set forth in the above-mentioned law.

Where transfer orders are entered into BOGS after the moment of opening of insolvency proceedings, they shall be enforceable and binding upon third parties provided that: i) the manager of BOGS can prove that it was not aware of the opening of the insolvency proceedings and ii) settlement has been initiated within the business day, during which the manager became aware of the opening of the insolvency proceedings.

VI. DEFAULT PROCEDURES

A. Please discuss the events and circumstances that would constitute default of a participant under the rules and procedures of the SSS or that would lead the SSS to make use of exceptional settlement arrangements or unwind procedures.

See section VIII.

B. What procedures are followed by the SSS once it has determined that a default event has occurred or that exceptional settlement arrangements are to be employed?

Exceptional settlement arrangements and special procedures are managed through the general risk management framework of BOGS. See Section VIII.

C. Has a participant in the SSS ever been declared in default or become insolvent?

No, there is no instance in which a participant was declared in default or became insolvent.

VII. SECURITIES OVERDRAFTS, SECURITIES LENDING AND BACK-TO-BACK TRANSACTIONS

A. Is it possible for debit positions (overdrafts) in securities accounts at the SSS to arise?

No, there is no possibility for overdrafts in securities accounts.

B. Under what circumstances does the SSS provide for the lending of securities to ensure settlements?

The SSS doesn't provide for the lending of securities to ensure settlements.

However, if one hour after the cut-off time for receiving notices of transactions with same-day value, a debit position in the securities account of a participant has occurred, the Manager of BOGS shall conduct an auction in the HDAT platform for the purchase, through overnight buy/sell back transactions, of an amount of securities equal to the ascertained debit position. Such an auction may also be conducted at the request of any participant who, although not in debit position at BOGS closure, seeks to cover an open position caused by his failure to deliver securities in time under transactions previously conducted with his counterparties, provided that he can furnish BOGS with the appropriate supporting documents in proof of such transactions. The relevant requests shall be submitted within thirty minutes after the cut-off time for receiving notices of transactions with same-day value. Details of the auction procedure are to be found on the Operating Regulation.

C. How does the SSS settle for back-to-back transactions?

A back-to-back transaction is settled only when double (matched) notifications of all parties involved (buyers and sellers) are received by BOGS. There are no amount limits in the back-to-back transaction provided that the above mentioned matched notifications do not extent the amount of securities available in the counterparties' accounts. Provided that the matched double notifications are received within the timetable described in V.C3 transactions are settled for same day value.

VIII. RISK CONTROL MEASURES

A. Please describe the roles and responsibilities of those areas of the SSS responsible for risk management and control.

BOGS Operating Regulations together with its amendments and additions provide the risk management framework of the system. The Bank of Greece is the sole responsible agent for the revision of this framework.

B. Please describe any internal and external audits or supervisory/regulatory examinations that are performed with respect to the SSS.

BOGS is subject to the control of the Bank of Greece Internal Auditing Department. The audit and reporting procedures ensure that there is no risk of fraud or negligence from the part of the Bank. As an internal section of the Bank of Greece, BOGS is also subject to the external audit control of the Bank as a result of its participation in the Eurosystem.

C. Please discuss whether the SSS has the capacity to value (i.e. mark to market) the securities that it holds.

At present BOGS' operations are executed in nominal values, however mark to market procedures are used for the provision of correspondent services to other central banks of the ESCB.

D. Please discuss whether the SSS has a lien on the securities held in or transferred through it.

BOGS has a lien only for securities owned by its direct participants and not for those owned by the participants' customers. However, there is a specific case, for risk management reasons, where a lien is applicable on participants' securities. This is achieved through the general pledging of all assets (monies and securities) of the participants kept by the Bank of Greece as manager of BOGS to guarantee performance of the participants' obligations under any transaction in BOGS (article 13 of the Operating Regulations). In the event of default of a participant, the Bank of Greece is authorised to take such assets in its custody, to realise them and to allocate their proceeds towards satisfaction of the defaulting participant's obligations (capital, interests, expenses).

E. Please discuss the circumstances in which the SSS requires collateral to limit or mitigate risks.

There are no circumstances in which BOGS requires collateral to limit or mitigate risk

F. Please describe the SSS's use of limits on exposures to monitor of control risks.

See VIII.G

G. Please describe other controls to mitigate or reduce risks at the SSS.

BOGS is operated by the Bank of Greece which exercises a close and direct oversight of the system and thus is always aware of the conditions prevailing in it. As a result of this oversight activity settlement risks are minimal. Furthermore, BOGS does not provide any form of credit to its participants. Although credit and liquidity risks can not be ruled out in the event of the default of a member of BOGS, the gross settlement procedures on TARGET2 as well as the risk management mechanisms used by BOGS minimize such exposures.

The Operating Regulations of BOGS provide for the following risk prevention measures:

- Strict membership criteria. Only supervised credit institutions and investment firms with adequate own capital base are allowed to become direct members in BOGS;
- DvP in central bank money. BOGS operates according to DvP models 1 and 3 for all transactions, including Eurosystem operations;
- A procedure of Securities Auction in case of short positions at the end of the final settlement cycle as mentioned in VII.B.;
- Sanctions are imposed on the default participant who is ipso facto and without reminder liable to pay a fine to BOGS as well as a penalty on the amounts overdue to the counterparty (Section 13 of the Operating Regulations);
- Finally a special clause in Section 16 of the Regulations provides for a “general legal pledge” of all assets of the participants.

In the above framework, the second paragraph of Article 57A of the Bank of Greece's Statute, as currently in force, and Article 1 – 10 of Law 3301/2004, implementing Directive 2002/47/EC, as amended by law 4021/2011, implementing Directive 2009/44/EC, shall apply, according to which if there are overdue obligations of credit institutions or enterprises in general towards the Bank of Greece resulting from transactions that are carried out in the context of BOGS, the Bank of Greece

may, in order to satisfy its claims and by way of derogation from provisions on pledge and realisation thereof, proceed to the sale of the pledged securities or claims, either on the Stock Exchange, through a member of a regulated market designated by the Bank, or over the counter, at its option, or, if the securities or claims are due and payable, cash them on its own behalf. The Bank shall select, at its discretion, the pledged securities and claims to be sold or cashed in order to satisfy its secured claims. The proceeds of such sale or cash collection shall be used to satisfy the secured claims, in terms of charges, interest and principal, prior to the claims of any other creditor.

IX. OPERATIONAL RISKS

A. Please provide assessments of the operational reliability of the computer and other systems used by the SSS, including any criteria that the SSS uses internally for this purpose.

NOTE: All audit, security and operational assessments of BOGS are only for internal use within the Bank of Greece.

1. What is the percentage uptime of the systems used by the SSS?

The percentage uptime of the systems used is 100%.

2. Has the SSS experienced major operational problems during the past two years?

No.

B. Please describe contingency or disaster recovery planning at the SSS

1. Data management (backup and audit trails)

In order to protect the application database (which includes business data) from hardware and software failures (including human errors) at the end of the business day, a backup of the database is taken, including all data of the same day's transactions. The backup is stored into both an IBM Enterprises Storage Server and a tape. Finally an application based auditing system records users' actions during the business day and is accessible to the Auditors.

2. Emergency plan

BOGS new production system runs on HP Proliant servers, working in High Availability Cluster Mode. The data is stored in an IBM Enterprise Storage Server.

In the production environment, the application runs on a set of 2 HP Proliant servers. All components of the servers (disk, CPUs, controllers, power supplies, batteries and fans) are

configured in pairs for fault tolerant operation. All servers have two local mirrored disks, where the operational system resides. In case of disk failure, the healthy disk guarantees system continuity with no interruptions and no data loss.

3. Disaster recovery

The Disaster Recovery System has been set up at the Information Systems Department of the Bank of Greece (in Halandri) and is therefore located 10 km from the Bank's Headquarters in Athens.

The Disaster Recovery System contains the same data as the Production one. The former provides uninterrupted operation in case of failure of the latter. The two systems operate on the same TCP/IP network allowing transferred online information between them. The line used is a dedicated line (10Mbs/sec) single access dual home. There is also a telecommunication line in operation, which can be used for transferring data between the two systems.

In case of data loss, the daily database backups are used to restore the data.

The Disaster Recovery System has 6 HP Proliant servers, working in High Availability Cluster Mode.

Two servers are hosting the database and the other four host the application and the communication services. The data is stored in an IBM Enterprises Storage Server. The data between production and Disaster Recovery are replicated online, in real-time.

C. What are the key features of the internal controls covering operations and security at the SSS (e.g. change controls or those covering remote access)?

BOGS is located within the Bank of Greece Headquarters and it is operated and controlled by its staff. That guarantees the confidentiality and security of the transactions during the processing and prevents the risk of unauthorized access to the physical data (e.g. messages) and the hardware. BOGS is subject to a well defined and structured operational and controlling procedure with various checks performed during the user entry, with each user defined at a different level of authorization depending on the nature of his/her job, until a transaction is settled. The hardware configuration and backup tapes are kept in a secure and protected computer room where access is restricted to authorized and trained personnel only.

D. Does the SSS impose minimum operational or performance standards on third parties (e.g. communications providers)?

BOGS imposes its operational standards in the contracts signed between the Bank of Greece and third parties regarding the provision of products and services. These standards are viewed on a case-by-case basis.