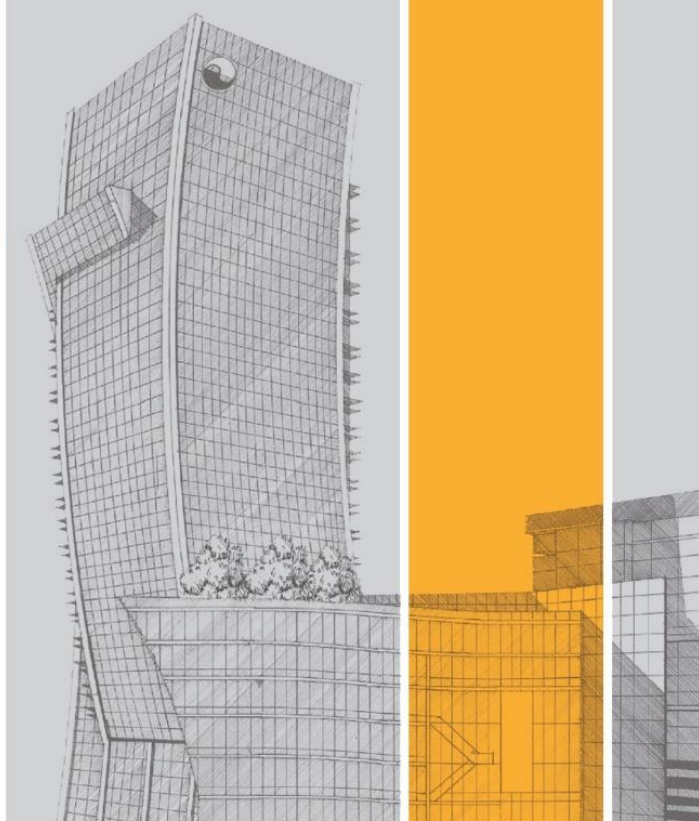




TSD

DISCLOSURE DOCUMENT

FOR THAILAND SECURITIES DEPOSITORY





TSD

Thailand Securities Depository

Responding institution:

Thailand Securities Depository Co., Ltd (TSD)

Jurisdiction (s) in which the FMI operates:

Thailand

Authority(ies) regulating, supervising or overseeing the FMI:

The Securities and Exchange Commission (SEC) and Bank of Thailand (BOT)

The date of this disclosure: September 2022

This disclosure can also be found at www.set.or.th/th/tsd/overview

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Executive Summary

TSD

Principles for Financial Market Infrastructures (PFMIs)

I. Executive summary

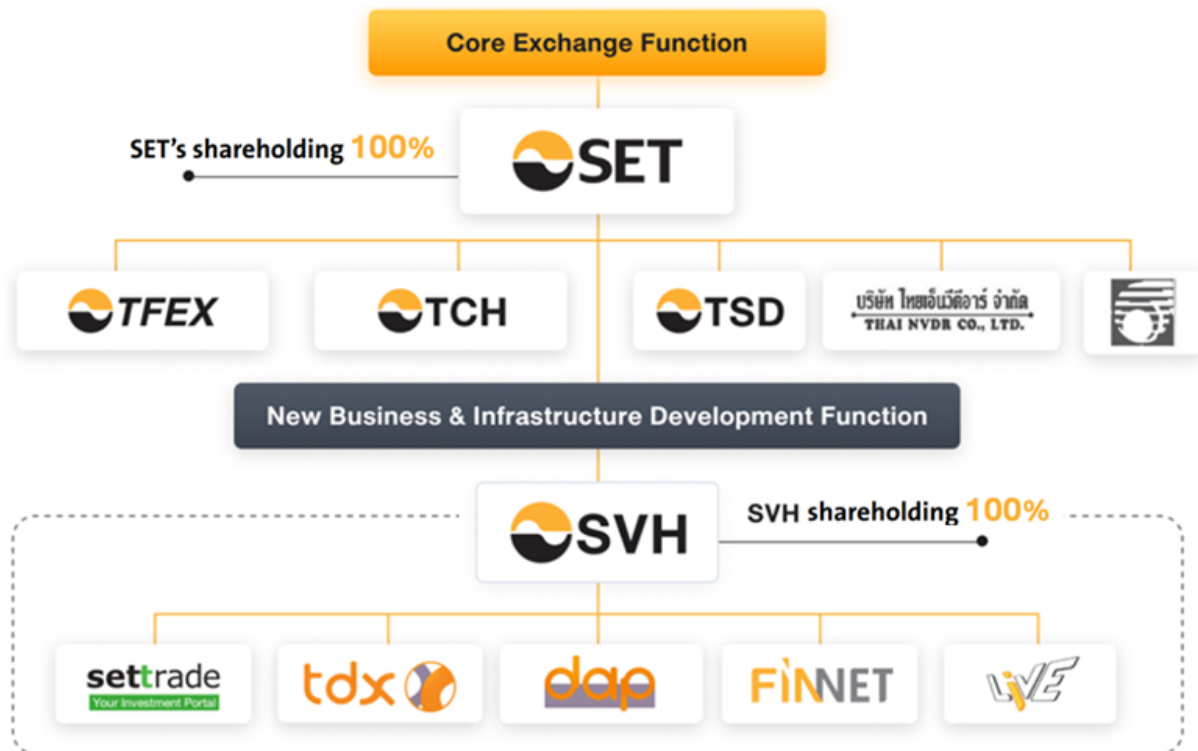
This disclosure of Principles for Financial Market Infrastructures (PFMIs) has been created in order to align with the international standard of the Committee on Payments and Market Infrastructures (CPMI) and Technical Committee of the International Organization of Securities Commissions (IOSCO). This document consists of two parts:

Part 1 TSD general information, and

Part 2 Disclosure of 24 Principles of Financial Market Infrastructures (PFMI)

As a subsidiary of The Stock Exchange of Thailand (SET), Thailand Securities Depository Co., Ltd. (TSD) is acting as central securities depository (CSD) and also providing registrar services for all listed securities and some OTC products.

Related bodies within the SET group are outlined in the organization chart, as follows





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**Summary of major
changes since the last
update of the disclosure**

TSD

II. Summary of major changes since the last update of the disclosure

Thailand Securities Depository Co., Ltd. (TSD) published its first disclosure on May 25, 2015. The disclosure has been updated along with TSD new development and rules amendments. Major changes from the previous update are as follows:

As of August 2018

- Updated risk framework and orderly wind-down process, in Principle 3, 15 and 17.
- Added the clarification according to Settlement Finality of addition of OTC Fixed Income Settlement service, in Principle 8.
- Updated rules and procedures to ensure the integrity of securities issues, and minimized and managed the risks associated with the safekeeping and transfer of securities, in Principle 11.
- Added the service of OTC Fixed Income Settlement in the disclosure, in Principle 12.
- Updated its investment risk as per a revision of the policies approved by Investment Committee, in Principle 16.

As of November 2020

- Updated the link establishment and arrangements between TSD and TCH, in Principle 20.

As of September 2022

- Updated TSD Background Information
 - Organization chart
- Updated the information on Principle 1 in Key consideration 1.4
 - The main laws and regulations governing TSD
- Updated the information in Principle 2 in Key consideration 2.3-2.5
 - The details of policy on conflict of interest
 - The composition of TSD Board
 - The duties of TSD managing director
- Updated the information in Principle 22
 - The provision of message conversion within TSD system
 - The implementation of ISO message standard and the Live schedule of ISO20022.



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**TSD background
information**

TSD

III. TSD background information

TSD Organization

Thailand Securities Depository Co., Ltd. (TSD) is a subsidiary of The Stock Exchange of Thailand (SET), established on November 16, 1994 with a registered capital of THB 200 million and commenced operations on January 1, 1995.

Functions

- **Securities depository services:**

Act as a central securities depository (CSD) for both listed securities and OTC products, using a secure and efficient book entry system. Provide services, for example deposit, withdrawal, transfer, pledge and revocation. Investors are able to conduct the transactions through their depository participants.

- **Securities registration services:**

Provide registrar services for listed securities and some OTC products for example

- prepare and maintain the Register Book that contains correct and complete information, and
- manage foreign holding to comply with related rules and regulations.

- **Other related services:**

- provide securities borrowing and lending (SBL) system to support SBL for covered fails
- Issue securities identification for example International Securities Identification Number (ISIN) and Classification of Financial Instruments (CFI), etc. as TSD is a member of Association of National Numbering Agencies (ANNA).

TSD Board comprises high level of executives from SET, and independent experts from the Capital Market. TSD is one of the SET group of companies. The chairman of the board of the company is, by position, the president of The Stock Exchange of Thailand. As part of the SET group, TSD is using the Corporate Governance Policy in line with SET group policy.

SET's primary roles are:

- To serve as the center for the trading of listed securities, and to provide systems needed to facilitate securities trading
- To conduct any business relating to securities trading, such as clearing house, securities depository, securities registrar, and similar activities
- To undertake any other business approved by the SEC.

SET's Board of Governors (BoG) by law, is composed of

- 6 members appointed by the SEC, of whom at least one is high executive from a listed company
- The other 4 members elected by SET's members (brokers)
- 1 member who by position is the president of SET

* Note: the president of SET will be elected by the SET Board of Governors.

The Board will nominate one of the governors, except the President, as the Chairman and may select another governor to be the Vice Chairman.

SET's executive management teams are formed to manage all SET's functions including CSD. The committees related to TSD's activities are Audit Committee and Risk Management Committee. All annual reports of the Audit Committee and Risk Management Committee are included in SET's annual report. In addition, there are sub-committees directly related to TSD activities: Business Conduct Sub-committee and Appeal Sub-committee

These committees are advisory and monitoring bodies for TSD's operation as a securities depository with fairness, transparency, conforming to the rules of international standards.

Legal and regulatory framework

TSD is governed by the Securities and Exchange Act B.E. 2535 (1992) under the supervision of The Securities and Exchange Commission of Thailand (SEC). As a subsidiary of The Stock Exchange of Thailand (SET), where SET holds 99 percent of the shares, this structure of shareholding conforms to the Securities and Exchange Act that SET may set up a subsidiary company for the implementation of securities depository services. In addition, TSD also has to comply with general law such as civil and commercial code law, etc.

In order to be in line with global community standards, TSD has joined various international organizations' standards such as Asia-Pacific Central Securities Depository Group (ACG), Association of National Numbering Agencies (ANNA) and others. All these entities are not directly governing their members, but indirectly constructing benchmark, best practices or any standardized scheme for all CSDs to follow.

System design and operations

TSD, as a sole Central Securities Depository (CSD) in Thailand, provides services such as custody, deposit, withdrawal, transfer, pledge and revocation for equity and fixed-income securities using a book entry system.

Securities depository

Shareholders are able to deposit their securities certificates through depositors. Depositors will make a deposit request to TSD book entry system where the segregation of assets between those of depositors and their clients are mandated by law. After being adequately verified by TSD, the securities scripless balance will then be recorded in the TSD system.

Security withdrawal

Similar to securities depository, shareholders can request to withdraw their securities and receive physical securities certificates through depositors, who will make withdrawal request to TSD book entry system. The withdrawal request can be completed only when the balance is available and sufficient to process.

Securities transfer

To transfer securities in the TSD book entry system, shareholders can make a request through their depositors. Transfer can be done either (1) securities accounts under the same depositors or (2) securities accounts across depositors.

Securities transfer in script form is also acceptable.

The pledge or laying down securities as collateral to depositors' pledging transactions can be carried out by TSD system. Pledging in scripless form makes it convenient and legitimate for the pledging transactions as long as the acceptor of the pledge is eligible depositor of TSD.

Securities settlement

TSD provides two settlement services for the following transactions:

(1) Exchange-traded transactions

TSD as a CSD, will electronically transfer securities from / to securities account according to Thailand Clearing House (TCH)'s instruction at the settlement date and time according to the cycle of each securities type.

(2) OTC Fixed income traded transactions

The settlement of OTC Fixed Income trading can be done both Free of Payment (FOP) and Delivery versus Payment (DVP). For DVP instruction, securities will be settled in TSD Book Entry system while payment will be carried out in Bank of Thailand system (BAHTNET) via TSD-BOT Real-time Gross Settlement linkage.

Securities borrowing and lending (SBL)

TSD provides SBL system for settlement of securities borrowed and lent in the event of failed delivery in clearing and settlement. The transaction occurs between Thailand Clearing House (TCH) and its members.

Repo

The repurchase market (repo) transaction is also provided by TSD to its depositors. As a system provider, depositors can access to the TSD's repo system to manage their repo transactions with their counterparty, following the repo services' rules



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**Disclosure of 24
principles for FMI**

TSD

III. Disclosure of 24 principles for FMI



Principle 1

Legal basis

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

Key consideration

- 1.1 *The legal basis should provide a high degree of certainty for each material aspect of FMI activities in all relevant jurisdictions.*

The legal framework provides a high degree of legal certainty for each material aspect of central securities depository functions. At present, TSD is the sole central securities depository in the jurisdiction which provides services such as custody, deposit, withdrawal, transfer, and pledge for all securities under the Securities and Exchange Act (SEA) using a scripless system, which are well defined and described both by SEC Act and TSD's rules. TSD also provides securities settlement services for those debt instruments traded on OTC.

Material aspects

- Enforceability of transaction
- Customer assets protection
- Immobilization and dematerialization of securities
- Settlement finality
- Delivery versus payment (DVP)

Legal basis for each material aspect

(a) Enforceability of Transaction

The contractual arrangement between TSD and depositors are fully enforceable under (1) Securities and Exchange Act and (2) Civil and Commercial Code.

The depositors are bound to comply with the depositor duties and responsibilities as stipulated in the membership application forms signed by depositors. The contractual arrangements between TSD and its depositors are fully enforceable under the Civil and Commercial Code. In particular, each depositor is bound to comply with TSD regulations.

(b) Customer assets protection

The SEA and TSD regulations require a deposit segregation and application of the customers' assets from those of the intermediaries. At CSD system, an intermediary is obliged to separate between its securities holdings and customers' holdings.

In addition, entities acting as custodians are legally obliged to keep account of the asset received from each customer separate from its own account.

(c) Immobilization and dematerialization of securities

In accordance with Sections 225-228 of the SEA, **immobilization** has been arranged after the transfer of securities into central depository system.

Currently, TSD has been authorized to offer central securities depository services. All types of securities including common stock, preferred stock, warrants, unit trusts, bonds, etc., both listed and unlisted instruments on exchanges, can be deposited with TSD in computerized central depository system. Most of the securities deposited with TSD are those listed on the SET.

Under section 225 of the SEA, when TSD has accepted the deposit of securities, it will record the securities balance under its own name and shall hold such securities for the depositor or for any customer who is the owner of securities. Then it requires depositors who have accounts with TSD to prepare and maintain a list of securities holders where securities are deposited with TSD. In this regard, it is presumed by the law that such deposited securities are held by TSD on behalf of those persons as appeared in the list of names prepared by the depositor. In addition, TSD rule clearly states that TSD holds the deposited securities under the name of TSD, in the capacity of a holder acting on behalf of the depositor or the depositor's customer who is the owner of such securities.

TSD is obliged to maintain accurate books and records of all securities it held for others. If TSD's depositor deposits the securities for and on behalf of its customer, such depositor is also required to keep the accurate and up-to-date books and records of its deposited customers at all times. The depositor can record the list of securities owners through the depository system or submit the list to depository system on daily basis. Under section 228, for all securities that have been deposited into TSD system, the transfer of securities within or between the accounts of the depositor will be done by book entry within TSD scripless system.

The **dematerialization** of securities can be arranged pursuant to the clause 10-11 under the Electronic Transactions Act B.E. 2544. In the case where the law requires that any information be presented or retained in its original form as an original document, the information in a digital form shall not be denied as an evidence in the legal proceedings, if such data message has been generated, stored or communicated by the method of which the completeness and integrity of the information has been maintained.

(d) Finality settlement

The finality of settlement is legally enforceable. As required by the SEC regulation, TSD rule clearly states the timing of settlement finality and the way finality is achieved.

(e) Delivery versus payment (DVP)

As required by the SEC regulation, Pursuant to TSD regulation, clause 405.02, it clearly provides the legal basis to support the settlement of securities transactions on DVP basis.

1.2 FMI should have rules, procedures and contracts that are clear, understandable and consistent with relevant laws and regulations.

TSD rules are formulated based on regulated laws, namely the SEA. The procedures of formulating TSD rules and regulations are reviewed by both internal and external entities. The process of depositor hearing is one of the necessary procedures to be carried out in order to make sure that all related parties are well understood. By doing so, the concerns and misinterpretation that the depositors may have, can be addressed, solved or brought back to further discussions, if needed. TSD will inform and make clear to all depositors and related parties of the general concept and detailed contents of the rules and regulations. After the hearing process, TSD will then submit the rules and regulations to the SEC for final approval before launching the rules.

The internal process includes reviewing and cross checking by legal staff and operation staff. As a SET subsidiary, TSD has SET legal department to conduct the necessary legal analysis and, where required, TSD always consults with the relevant agencies to ensure that their regulations are consistent and enforceable under the relevant Thai law.

To-date there has not been any inconsistency identified with the relevant laws and regulations.

1.3 FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The laws, regulations, rules and procedures governing the operations and the activities of TSD are public and accessible to depositors. In particular, depositors receive comprehensive documentation covering the rules, requirements, procedures and instruction of TSD prior to the effective date of the regulations. This documentation is also available on request and is accessible on the TSD website. The public authorities' regulations are also available to the general public on the websites of the Ministry of Commerce (MoC), the Securities and Exchange Commission (SEC) and Bank of Thailand (BOT).

1.4 FMI should have rules, procedures and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by FMI under such rules and procedures will not be voided, reversed, or subject to stays.

CSD activities in Thailand are governed and regulated under provisions of Thai laws and regulations. The main laws and regulations are:

- The Civil and Commercial Code: (e.g. provisions governing juristic acts and obligations, contracts)
- The Securities and Exchange Act B.E. 2559 (SEA)
- The Notification of the Capital Market Supervisory Board No. Tor Thor. 32/2559 Re: Rules, Conditions, and Procedures for Operation of Securities Clearing Houses and Central Securities Depositories
- The notifications, rules, and regulations issued by The Stock Exchange of Thailand (SET), and the TSD
- The agreement between depositors and TSD as a central securities depository (CSD).
- BATHNET Rules and Regulations B.E. 2549;
- The Bankruptcy Act B.E. 2483.

Generally, the contractual arrangements between TSD and its depositors are fully enforceable under the Civil and Commercial code. In addition, the depositors are bound to comply with the depositor duties and responsibilities as stipulated in the membership application forms signed by depositors. In particular, each depositor is bound to comply with TSD regulations. In addition, SEA provides enforceability of the TSD rules to achieve a high degree of certainty that its rules, procedures and contracts will not be voided, reversed or subject to stays.

At present, there is no circumstance causing TSD to cease the enforceability related to their activities or arrangement.

1.5 FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

Currently TSD operates only in Thailand. There is no business conducting in other jurisdictions or with any entity incorporated under foreign jurisdiction.

Principle 2

Governance

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

Key consideration

2.1 FMI should have objectives that place high priority on FMI safety and efficiency and explicitly support financial stability and other relevant public interest considerations.

- TSD is wholly owned by SET, with the aim to perform central securities depository function. The objectives of TSD are to develop procedures to enable the transfer of securities via book entry and keep records of such transfers and to provide safe custody of such securities, while maintaining safety of the system provided to prevent fraud with smooth and flawless operation. To move forward, TSD has laid out clear strategies and targets to increase competitiveness and improve capabilities.
- To conduct the central securities depository business, TSD has to comply with the SEA and notifications issued by the SEC which oblige TSD to take into account financial stability and public interest such as segregating client's asset from participants' assets, conducting public hearing forum, disclosing necessary information to preserve public interest, etc.
- In addition, TSD regularly reviews its operational procedure and risk management to make sure that it can serve its role as central securities depository to all participants.

2.2 FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants and, at a more general level, the public.

- As being wholly owned by SET:
 - TSD's governance structure is conformed to the SET group. TSD's Board of Directors is appointed to overlook overall TSD operations including approval of depository rules and regulations for CSD business conduct. The responsibility and accountability of TSD's Board are determined by the board charter. The reporting line of the management is set up and documented as agreed by SET/TSD's Board and executive management.

- In addition, to provide the fairness and integrity of CSD procedures, SET's Audit Committee and SET's Risk Management Committee will review the internal audit as well as risk management policies and procedures of the SET group including TSD.
- TSD's code of conduct is also in line with the SET group. TSD aims to conduct its business with the principles of good corporate governance in accordance with international standards, applying the principles of good corporate governance of the Organization for Economic and Co-operation Development (OECD) as main principles, supported by principles of good corporate governance for listed companies to enhance confidence in the organization, transparency in the performance of work and capability for competitiveness, and to take a leadership role for other organizations in the Thai capital market.
- For best practice on stakeholders, TSD is committed to conducting business with all stakeholders based on fairness in accordance with relevant laws and standard. TSD will not violate the rights of the stakeholders; will recognize the ownership and rights in intellectual property of others. TSD also provides the channels for stakeholders to express their constructive opinions or suggestions for improvement.
- In addition, TSD discloses any information to stakeholders transparently, sufficiently and appropriately. The treatment of all groups of stakeholders is outlined in the code of conduct of TSD.
- The names of all board of directors, corporate governance policy and code of conduct for TSD's directors are publicized on the website.

2.3 The roles and responsibilities of FMI board of directors (or equivalent) should be clearly specified and there should be documented procedures for its functioning, including procedures to identify, address and manage member's conflicts of interest. The board should review both its overall performance and the individual board members' performance regularly.

- TSD's Board of Directors have the power and responsibility as stated in the Charter of the Board of Directors, under the principle of SET's corporate governance aligning with Securities and Exchange Act and other standards including OECD and PFMI. TSD's Board of Directors has the duty to manage the Company's business in accordance with its objectives, Articles of Association and resolutions of the shareholders' meetings, while exercising duty of care and loyalty and bearing in mind the Company's best interests.

Roles and responsibilities of TSD's Board are:

- Prescribe policy and business plan, and supervise TSD in its operation of service business as center for securities depository and related businesses, while having sufficient source of fund and efficient work system.
- Prescribe clear rules in relation to the provision of service. In an event the rules may affect the business operation or the interests of depositors, TSD shall arrange for the opinion of such persons to be heard.
- Ensure that there are in place effective internal control system, and effective internal audit system.

- Prescribe scope of policy for risk management including business continuity management and review on a regular basis.
 - Ensure that there is a correct and complete TSD's financial information disclosed in accordance with the accounting standard.
 - Prescribe framework for TSD's investment policy, taking into account the liquidity, investment risk and possible impact on the stability of the settlement system.
 - Arrange for the preparation of rules on good business management, which covers policy on the prevention and management of conflict of interests and prevention of improper use of data to make benefits of oneself.
 - Delegate certain powers of undertaking to the management team as appropriate.
- **Policy on conflict of interest**

To guarantee impartiality in the performance of their duties, the Board requires committee members, and advisors of SET and its subsidiaries including TSD to sign a Letter of Intent on Impartiality when they are appointed to be a board of director, committee or given a special task. Wherever they have any direct or indirect interest in the consideration of the matter, they are required to notify the parties concerned in advance of each potential conflict of interest, as well as to abstain from participating or voting in the particular matter under consideration. TSD expects that all employees will act in the interests of the CSD, without favor or preference based on possible direct or indirect personal gain. Under the code of conduct manual, the committee, sub-committee, consultant and employee, who have a stake in a discussed agenda, must declare before voting. Generally, interested person gives up their voting rights.
 - Moreover, the Audit Committee and Risk Management Committee are set up by SET to review the internal audit as well as risk management policies and procedures of the SET group including TSD.
 - TSD Board undertakes annual assessment of the entire board work performance at least once a year to ensure that they are in line with good corporate governance practices.

2.4 The Board should contain suitable members with appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s).

- Subject to the SEC Notification, TSD's Board retains independent board member at least one person. The independent board members shall not have any characteristic as follows:
 - (1) Being executive, staff, employee, consultant of the securities depository or used to hold such positions unless the term has ended for at least 2 years as of the date of appointment as independent committee member
 - (2) Being committee, executive, staff or taking part of management of depository member
 - (3) Being shareholder with controlling power of clearinghouse or central depository
 - (4) Being unable to provide independent opinion for the operation of clearinghouse or central depository.

Currently, composition of TSD Board is required by SEC regulation. The names of all TSD board members, including independent directors, are publicized on the website and company annual

report.the SET group which is subject to section 177 of the Securities and Exchange Act. The remuneration processes are decided transparently and without the board's involvement. The TSD's board members received monthly remuneration in accordance with SET Group policy.

The annual performance assessments of the chairman and other executive management members shall be clearly defined, to benchmark individual actual performance against their KPI. Compensation is linked to individual performance, in compliance with the SET group's policies, the overall economic environment and historical records.

2.5 The roles and responsibilities of management should be clearly specified. FMI's management should have appropriate experiences, a mix of skills and integrity necessary to discharge their responsibilities for FMI's operation and risk management.

- TSD's roles and responsibilities as well as reporting line are clearly specified in the organization structure. SET's president may authorize any person to perform any act to the extent that such authorization is not contrary to the rules or regulations, as well as strategy specified by the Board. As set out in the code of conduct, TSD managing director shall have the duties as follows:
 - Having primary responsibility for implement TSD policy
 - Overseeing the results of company performance regularly
 - Being TSD representatives to perform juristic acts
 - Assigning rights and delegate duties to persons within the lawful scope
 - Approve business continuity plan
 - Approve policy and measures for the security of the information technology system
 - Performing any duty according to TSD Board's assignment or the resolution of the shareholders' meeting.
- To ensure that central securities depository operates in an efficient and transparent manner and that its operation promotes integrity of the capital market and complies with the regulations on good governance, pursuant to SEC notifications, TSD appoints executives who have knowledge of and experience in the capital market or knowledge and experience useful for the operation of the central securities depository. Furthermore, TSD clearly determine roles and responsibilities and evaluate the performance of the executives.
- TSD Board of Directors, appointed by major shareholders (SET), has an authorization to appoint management and remove one(s) if necessary.

2.6 The Board should establish a clear, documented risk-management framework that includes FMI's risk-tolerance policy, assigned responsibilities and accountability for risk decisions, as well as decision making addresses in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources and access to the Board.

- The TSD risk management framework has been established and approved by TSD Board. The framework includes risk management policy, corporate risk appetite and risk tolerance, roles

and responsibilities for risk management in every level, process of enterprise risk management as well as examples of risk management measures. In addition, TSD has Business Continuity Management (BCM) policy to set guideline for business to resume operation right after business interruption. This covers emergency response, crisis management plan, business continuity plan and IT disaster and recovery plan.

- TSD board has established a clear, documented risk management framework that includes 3 key components;
 - Strategic risk
 - Operational risk
 - Compliance risk
- The risk management department of SET is responsible for facilitating enterprise risk management of TSD. This includes assisting TSD to identify, assess, monitor and manage the risk as well as providing opinions and suggestions to ensure that key risks are monitored and managed at acceptable level and risk management procedures are performed according to the policy and framework. The framework is reviewed periodically. Risk management department is in charge of reporting the risk status to the TSD Board.

2.7 The Board should ensure that the FMI's overall strategies, designs, rules, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

- As most TSD regulations are approved by the SEC under either the SEC Securities Notification, rules or regulations of TSD shall come into force upon approval of the Capital Market Supervisory Board. Before submitting for approval of rule changing that may affect relevant stakeholders, TSD must arrange participant hearing forum for the parties receiving direct impact in order to make sure that TSD's operational design, strategies and decisions are suitable. Rule amendments and stakeholders' opinions will always be considered by TSD board, before submitting to SEC for approval.

After the new rules or rules amendments are approved by SEC, TSD will circulate the rules to all parties before the effective date. These rules and regulations are also publicly available in TSD website.

Principle 3

Framework for the comprehensive management of risks

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

Key consideration

3.1 *An FMI should have risk-management policies, procedures and systems that enable it to identify, measure, monitor, and manage the range of risks that arise or are borne by FMI.*

- TSD Board approves and reviews risk management framework on an annually basis to effectively manage risks across functions. Risk policy has been approved in accordance with the SET group's risk management framework, including but not limited to COSO and ISO31000.
- Risk management department of SET is responsible for facilitating enterprise risk management of TSD. This includes assisting TSD to identify, assess, monitor and manage the risk as well as providing opinions and suggestions to ensure that key risks are monitored and managed at acceptable level and risk management procedures are performed according to the policy and framework. The framework is reviewed on an annually basis. Risk management department is in charge of reporting the risk status to the TSD Board.

TSD has managed the key corporate risks in these areas:

- Strategic risk arises from making unsuccessful business decision or from a failure to respond to changes in business environment including disruptive technology.
- Operational risk incurs from inadequate processes in operations. It also includes those risks related to data management, IT security, cyber attack and system failure that may hamper TSD from achieving the business objectives.
- Compliance risk arises from unintentionally non-compliance with regulations and from changing regulation landscape around the globe.

As a CSD, Thailand Securities Depository Co., Ltd. (TSD) is exposed mainly to operational risks. Therefore in order to strengthen the confidence among involved parties as well as preserving integrity of the central depository, TSD has a process for identifying and managing its operational risks. Each department is responsible for evaluating the operational risk of its own and reporting to the risk management department of SET to evaluate the existing measures to be able to cover those risks. Risk management policies are then established and periodically reviewed.

- In addition, to ensure that TSD issues sound and efficient risk management framework, Under Clause 11 of No. Tor Thor. 32/2559, TSD shall take at least the following actions with respect to risk management:
 - (1) establish a written comprehensive risk management policy framework that covers all risk areas, with approval of its board of directors or the working group assigned by the board of directors
 - (2) establish risk management measures which are sufficient to effectively prevent and manage risks in different areas
 - (3) regularly review said policy framework and risk management measures to ensure appropriateness.

3.2 An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to FMI.

TSD, as a securities depository, where the segregation of asset between members and member's clients are mandated by SEA, there would be no risk that bears from depositors. However, when implementing new policies, TSD always engages depositors for their feedback, inputs and for them to be aware of the changes in policies and systems that might have an impact on their operations. The participants can then adjust their operational procedures accordingly, not creating any problem to overall system. In addition, market participants are also obligated to follow TSD rules and regulations to perform the depository-related activities with TSD, otherwise TSD can take disciplinary actions against such participants.

3.3 An FMI should regularly review the material risks it bears and poses to other entities (such as other FMIs, settlement banks, liquidity providers and service providers) as a result of interdependencies and developing appropriate risk-management tools to address these risks.

TSD has regularly reviewed their material risks to their respective entities, for instance, the central bank using it for fund transfer for debt securities settlement. In addition, TSD has very reliable system and always works closely with technology provider in order to ensure a secure and efficient system and infrastructure.

3.4 An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as an ongoing concern and assessing the effectiveness of a full range of options for recovery or orderly wind-down. FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment.

- To ensure the continuity the critical function when operational problems happen, the Business Continuity Plan (BCP) and Disaster Recovery Plan (DRP) tests are carried out at least once a year to make sure that TSD business continues smoothly when there is a crisis. All scenarios

for routine chores are given to be tested, as well as surprised incidents for every BCP test in order to make all concerned parties realize and know how to tackle the problems.

In order to make BCP test more realistic, TSD uses potential incidents or plausible critical events that may arise to operations which may affect to the end of the operation or deter the completion of the operation. Those plausible scenarios are critically reviewed by operation staff, risk management team and top executives, to make BCP test very efficient. The executives also determine the recovery of all necessary crucial functions for the least recovery time and disaster magnitude.

In case TSD seems to be no longer viable as a result of the failure of plan implementation or disruption arising from other sources of risks, the recovery and resolution plan shall be triggered.

- Under clause 13 of No. Tor Thor. 32/2559, TSD shall establish a plan for recovery or an orderly wind-down, with approval of its board of directors, which contains scenarios, tools, procedures for recovery and guidelines for administration of assets and liabilities.
- TSD Board has to approve recovery and orderly wind-down plan. The plan will be reviewed and updated if the circumstance has been changed.

Principle 4

Credit risk

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

This principle is not applicable to TSD.

Key consideration

- 4.1 *An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.*
- 4.2 *An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.*
- 4.3 *A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.*
- 4.4 *A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-*



complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

- 4.5 A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.*
- 4.6 In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.*
- 4.7 An FMI should establish explicit rules and procedures that address fully any credit loss it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any fund an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resource that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner*

Principle 5

Collateral

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

This principle is not applicable to TSD.

Key consideration

- 5.1 *An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity and market risks.*
- 5.2 *An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.*
- 5.3 *In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent that they are practicable and prudent.*
- 5.4 *An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.*
- 5.5 *An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.*
- 5.6 *An FMI should use a collateral management system that is well-designed and operationally flexible.*

Principle 6

Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

This principle is not applicable to TSD.

Key consideration

- 6.1 *A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio and market it serves.*
- 6.2 *A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.*
- 6.3 *A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the sub-portfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close-out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent that they are practicable and prudent, limiting the need for destabilizing procyclical changes.*
- 6.4 *A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.*
- 6.5 *In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more*



CCPs are authorized to offer cross-margining, they must have appropriate safeguards and harmonize overall risk-management systems.

- 6.6 A CCP should analyze and monitor its model performance and overall margin coverage by conducting rigorous daily back testing at least monthly, and, more frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.*
- 6.7 A CCP should regularly review and validate its margin system.*

Principle 7

Liquidity risk

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

This principle is not applicable to TSD.

Key consideration

- 7.1 *An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers and other entities.*
- 7.2 *An FMI should have effective operational and analytical tools to identify, measure and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.*
- 7.3 *A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.*
- 7.5 *For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resource in each currency includes cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.*
- 7.6 *An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, these liquid resources should be in the form of assets that are likely to be saleable or*

acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

- 7.7 An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.
- 7.8 An FMI with access to central bank accounts, payment services or securities services should use these services, where practical, to enhance its management of liquidity risk.
- 7.9 An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI, and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, including all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.
- 7.10 An FMI should establish explicit rules and procedures that enable the FMI to effect same day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

Principle 8

Settlement finality

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

Key consideration

8.1 *An FMI's rules and procedures should clearly define the point at which settlement is final.*

- According to TSD's rules 400, depositor shall transfer the securities in accordance with the regulations and procedures as follows:
 1. In the case of submission of the application to TSD
 - TSD shall transfer or take the transfer of securities within the business day following the date of the receipt of the application. The taking of transfer of the securities shall become effective on the same day.
 2. In the case of recording through the system connected with TSD

Securities: The transferee shall acknowledge the transfer, the securities transfer shall then be effective.

Bond with/without settlement value: TSD shall transfer or take the transfer of the debt instruments based on the information submitted to TSD by the transferor or transferee, in accordance with the regulations and procedures prescribed by TSD. The taking of transfer of the debt instruments shall become effective on the date of receipt of the application.

Validity of a transfer of securities

The transfer of securities shall be valid when TSD records transaction in the securities account of the depositor, except the securities transfer from a Thai owner to a foreign owner that shall become valid when the registrar of the securities issuer notifies TSD with respect to the transferor and the transferee shall be the same depositor and shall keep documents or evidence related to the transfer and make these available for TSD to inspect at all times.

In the case of a securities transfer with settlement, TSD shall record the transaction in the securities account of the depositor when it receives confirmation of the settlement from the TCH for exchange-traded securities or BOT for OTC traded debt instruments. With respect to the following settlement services:

1) Exchange-traded transactions

TSD will transfer securities in the clearing member's Settlement account using the book entry through the TSD's securities depository system according to the information from TCH. The depositor are responsible for maintaining the securities in their securities in Settlement Account at the amount sufficient for their securities delivery obligations as indicated in the TCH report by 1.30 p.m. on the settlement date (T+2), the depositor will receive the securities in their securities depository account after the cash clearing process is finished.

2) OTC Fixed income traded transaction

The settlement of OTC fixed income trading can also be done by delivery versus payment (DvP) via linkage system between TSD and Bank of Thailand namely RTGS where transaction submitted in the value date will be processed on a real-time basis. The securities will be settled in TSD book entry system while payment will be carried out in BOT's system (BAHTNET) via TSD-BOT real-time gross settlement linkage (RTGS). TSD will record the transaction in the securities account when it receives confirmation of the settlement from Bank of Thailand. The transaction then becomes final.

When the transfer of securities becomes valid, the depositor may not revoke such transaction.

- For linkage between clearing system, securities settlement system and payment system:
 - In the case of a securities transfer with settlement, TSD shall record such transaction in the securities account of the depositor when it receives confirmation of the settlement from the Clearing House.
 - In the case of DVP/RVP for OTC Bond trading, TSD as a member of BAHTNET will receive confirmation of fund transferred of buyer from BAHTNET system. After that the securities which are earmarked for settlement will transfer in book entry system from seller account to buyer account. TSD shall record such transaction in the securities account of the depositor when it receives confirmation of the money settlement from Bank of Thailand.

When the transfer of securities becomes valid, the depositor may not revoke such transaction.

- As a SET subsidiary, TSD has SET legal department to conduct the necessary legal analysis and, where required, TSD always consults with the relevant agencies to ensure that their regulations are consistent and enforceable under the relevant Thai law

To-date all the general depositors are incorporated in Thailand and are subject to relevant law in Thailand. TSD shall operate in accordance with Securities and Exchange Act B.E.2535 and Capital Market Supervisory Board Notification. The depositors are bound to comply with the depositor duties and responsibilities as stipulated in the membership application forms signed by depositors. The contractual arrangements between TSD and its depositors are fully

enforceable under the Civil and Commercial Code. In particular, each depositor is bound to comply with TSD regulations.

- All TSD's rules and regulations including the context of finality are available on the website.

8.2 *An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.*

- In Thailand, most government bonds are traded through the OTC market with real time gross settlement. TSD operates the RTGS settlement system, where transaction submitted in the value date will be processed on a real-time basis, for corporate and government bonds traded over the counter. The settlement instructions for such bonds traded on the OTC market are required to be matched on the TSD system as specified by the participants of each transaction. The settlement of securities take place by book entry in the depositor's account at TSD and the settlement of cash is carried out through a real time link to BAHTNET system (RTGS). The process will be done in value date by the time of RTGS services hour.
- TSD provides finality for bond settlement with the RTGS system that allows real time finality. In the event that the participant does not have available securities or available cash, the settlement will not take place.
 - In addition, the RTGS system processes the transaction according to the following procedure:
 1. TSD checks the availability of the seller's securities account. If the seller's account has sufficient securities available, TSD will lock the securities equal to the amount of matched instruction. The securities are transferred to buyer as soon as receiving confirmation of cash settlement from BAHTNET system.
 2. If there is insufficient cash availability in the account with BOT, the transaction is routed to the queuing system. If the transaction is cancelled from BATHNET system, RTGS system will reject the transaction and release the securities previously blocked in the seller's securities account.

8.3 *An FMI should clearly define the point after which unsettled payments, transfer instructions or other obligations may not be revoked by a participant.*

If payment is not complete, securities are not transferred when the instruction occurs. Therefore, there is no unilateral revocation of payment or securities transfer in the settlement system.

Principle 9

Money settlements

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

This principle is not applicable to TSD.

TSD as the SSS provides settlement services for OTC fixed income traded transaction which can be done by DVP settlement. The bond will be settled in TSD book entry while payment in Thai baht will be carried out in central bank system (BOT's system) called "BAHTNET" via real time gross settlement (RTGS). TSD will record the transaction in the securities account when it receives confirmation of the payment from the Bank of Thailand. The transaction then becomes final.

TSD does not conduct money settlement and also does not act as counterparty between buyers and seller either, so there is no concern on credit risk and liquidity risk.

Key consideration

- 9.1 *An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.*
- 9.2 *If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.*
- 9.3 *If an FMI settles in commercial bank money, it should monitor, manage and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalization, access to liquidity and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.*
- 9.4 *If an FMI conducts money settlements on its own books, it should minimize and strictly control its credit and liquidity risks.*
- 9.5 *An FMI's legal agreements with any settlement bank should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.*



Principle 10

Physical deliveries

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

This principle is not applicable to TSD.

Key consideration

- 10.1 *An FMI's rules should clearly state the obligations with respect to the delivery of physical instruments or commodities.*
- 10.2 *An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.*

Principle 11

Central securities depositories

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

Key consideration

11.1 *A CSD should have appropriate rules, procedures and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, to prevent the unauthorized creation or deletion of securities, and to conduct periodic and at least daily reconciliation of securities issues it maintains.*

- TSD rules have indicated clear procedure of implementing CSD systems. To safeguard the rights of securities issuers and holders, TSD maintains the definitive record of legal ownership for a securities holder through the laws and regulations. Thus, once upon request, the participants submit the list of a securities holder to TSD, such list will be recorded as legal shareholder of the particular securities. In respect of the deposit of securities of the customers in the Depository Account, the depositor can open such Depository Account for each customer separately.
- To prevent any unauthorized access to the system, TSD maintains a comprehensive system of internal controls and procedures for depository functions as well as other operational risk system controls that are reviewed by SET's Internal Audit group. Only participants who have access to the system can enter and make changes to the securities kept in their own accounts. No participant can access to another participant's accounts.
All participant data or information will be kept at most professional endeavor and kept confidential, except it is widely known by the public or requested for retrieval by an authority.
- TSD has implemented procedures to securely manage the creation and deletion of securities in TSD system. Proper accurate and timely documentation is required as well as the strict validation and authorization with the pre-specified procedures has put in place for any creation and deletion of securities via deposit and withdrawal including credit to or debit from TSD book-entry system by securities registrar's instructions. In addition, TSD performs internal reconciliation with TSD registrar system on daily basis.

- TSD has maintained and reconciled outstanding balances of securities with depositors on a daily basis, by specifying in the rules that depositors have to notify TSD immediately or by the beginning of next business day, if any discrepancy or error of data or information that TSD has sent to them has been found, so that the problems will be investigated and solved as soon as possible.
- The securities to be deposited with TSD shall be securities which its issuer has securities registration system connected with the securities depository system of TSD so that the record of securities holders is able to be informed and reconciled.

11.2 A CSD should prohibit overdrafts and debit balances in securities accounts.

TSD has robust and prudential procedures in place to ensure the stringent prohibitions of overdrafts and debit balances in depositor's securities account in TSD system. For book-entry transfer, TSD has also established the process together with system validation in order to guarantee that securities transfer can be executed only if available outstanding balance in securities account of transferor is sufficient for transfer-out instruction.

For securities settlement of exchange traded transactions, in case of failure to deliver securities, TSD will allocate the available securities to depositors entitled to receive securities as per criteria for allocation transparently stated by CCP's rules and regulations.

11.3 A CSD should maintain securities in an immobilized or dematerialized form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilize or dematerialize securities.

- TSD keeps securities in immobilized form and applies only book-entry in the settlement and securities transfer. Physical form of securities certificate is still held by some groups of shareholders, but in a relatively small portion.
- TSD has an incentive to keep securities in immobilized form, such as opening an account of each issuer to support the deposit of securities of certain shareholder who has no depository account with TSD depositor and charging depository fee for deposit of certificate much cheaper than the withdrawal. The initial offering or new share offering is induced to be fully immobilized securities, keeping at scripless form as much as possible.

11.4 A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

- According to TSD rules, securities kept in the TSD system will be protected against custody risk. To prevent any discrepancy of record keeping, TSD conducts daily reconciliation with depositors as well as monitoring and sending the confirmation of all transactions from settlement and transfer. The movement of securities has to be recorded and eligible statements as prescribed by depositor's client order have to be kept. Thus, all securities are well taken care of.

- In terms of control, TSD has hierarchical level of management and monitoring. There is a delegation of power of implementation to the securities kept in the system. Moreover, the access to the TSD system is classified into sub groups, each group having different authority, such as inquiry, entry, authorized levels, etc.
- Securities kept in TSD is also protected by relevant laws, such as civil and commercial code, the SEC laws, as such the securities kept for clients are clearly segregated from depositor's assets. According to the SEC Act, TSD keeps the securities in the depository system under CSD depositor's accounts and holds the securities on behalf of those persons as appeared in the list of names prepared by the depositor. As a result, TSD is not the owner of the securities.
- The procedures of formulating CSD rules and regulations are reviewed by both internal and external entities. The internal process includes reviewing and cross checking by legal staff and operation staff. As a SET subsidiary, TSD has SET legal department to conduct the necessary legal analysis and, where required, TSD always consults with the relevant agencies to ensure that their regulations are consistent and enforceable under the relevant Thai law.
- Pursuant to Clause 36 of No. Tor Thor. 32/2559, proposed amendments to the rules of central securities depository shall come into force upon approval of the Capital Market Supervisory Board, which will consider the suitability of the amendments based on the impact of stakeholders, fairness, and transparency.

11.5 A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.

To comply with international standards and all necessary related rules and regulations: the SEC Act and rules issued by the SEC, TSD has robust system & operational procedure to ensure that the segregation concept is applicable.

- The principle that TSD has applied includes:
 - 1) Segregation the assets of TSD from depositors
 - 2) Segregation the assets of depositors from those of any other depositors
 - 3) Segregation the assets of depositor from those of depositor's clients.

Depositors are required to strictly segregate *their* asset from its clients' assets. TSD has provided 2 choices of preferences for depositors to customize their clients' assets in TSD system:

- (1) Omnibus Structure, which depositor is able to hold securities that belong to different clients of that depositor in one depository account during the intraday. At any case, the depositor must submit the securities balance of each client account to TSD on a daily basis.

- (2) Segregated Structure, which depositor is able to segregate the Securities of any of the depositor's clients separately within TSD system. Segregated Structure has been more encouraged as it will drive greater extent to transparency and economies of scale, more STP and less human intervention.

Once a record date has been given, the SEC Act states that the depositors must supply the name list of securities holders, all the securities will then be recorded under the actual owners' names.

The facilitation of securities transfer between depository accounts of each depositor and between accounts of different depositors has also been arranged of which the validity and irrevocable matters of securities transfer are also mentioned in the rules.

11.6 A CSD should identify, measure, monitor and manage its risks from other activities that it may perform. Additional tools may be necessary in order to address these risks.

Other services TSD provides to its depositors include the system for real-time gross settlement of debt instruments, and repurchase market (REPO) platform. All of them are done under the TSD provided systems with no access or intervention of TSD. So there is no relevant counterparty risk incurring to TSD.

In addition, TSD also provide SBL service which is the lending program as the last resort for clearing house, where TSD provides a system only. These transactions are conducted between TCH, lender and borrower who are depositors in the TSD system. Thus, TSD is not taking the risks.

Principle 12

Exchange-of-value settlement systems

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

Key consideration

12.1 *An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.*

TSD applies delivery versus payment (DVP) in the settlement mechanism. The process of eliminating principal risk is undertaken.

For OTC fixed income settlement, two linked obligations need to be completed are securities and payment. TSD system accounts for securities settlement, where central bank system accounts for payment settlement. Securities are withheld in depository account of the seller when TSD receives a settlement instruction, while central bank system (RTGS) processes the payment instruction. Once the payment is completed, RTGS will confirm to TSD system through real-time linkage. TSD will transfer the securities from seller account to buyer account only if the payment is confirmed.

Principle 13

Participant-default rules and procedures

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

Key consideration

13.1 *An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and the event that addresses the replenishment of resources following a default.*

Though TSD as a CSD does not have any obligation against its depositors, TSD's rule defines conditions in which TSD may terminate the depository member when a depository member will no longer be able to meet their obligations, or when the depositor is unable to operate its business as it was ordered to suspend business operation, or is under receivership, or is bankrupt, or is under liquidation for dissolution.

Termination as a Depositor

When there is the termination as a depositor by the order of TSD, when there is an event which may cause the depositor to no longer be a depositor, or when there is TSD's order to close all securities accounts, the following rules and procedures shall be applied:

1. The depositor submits the list of securities owners to TSD in accordance with the methods and within the period prescribed by TSD, so that TSD can compile and submit the same to the registrar of the securities issuer for use in support of the application for securities certificates, except in the case that the securities issuer has conditions for issuing securities certificates, wherein the depositor must contact the securities issuer to further undertake any act in relation to such securities.
2. If the list of securities owners is not complete or not accurate as prescribed by TSD, thereby causing damage to TSD or the securities owners, the depositor shall be responsible for the damage incurred.
3. In requesting securities certificates, the depositor must submit the receipt to TSD. A request for securities certificates shall be made within the period prescribed by TSD. If the depositor fails to collect such certificate within such period, TSD may charge a fee for keeping securities certificates as prescribed by TSD.

The person whose status as a depositor is terminated shall remain obliged to make full payment of any fee or expense owed to TSD.

13.2 An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

The line of power as well as roles and responsibilities for termination of depositor are clearly defined in TSD operation flows. In addition, TSD will promptly inform the resignation or the termination of a depositor to the remaining depositors in order to prevent any business or operation failure due to such termination.

13.3 An FMI should publicly disclose key aspects of its default rules and procedures.

The process of depositor termination is well announced in the TSD rules and posted on the TSD website. As previously described, TSD will transfer all securities deposited in the depositor accounts and then close all accounts under that particular depositor name.

13.4 An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

TSD depositor termination process mainly involves the transfer of securities and the closing of the depository accounts. These functions are normally tested during the BCP testing process every year.

Principle 14

Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

This principle is not applicable to TSD.

Key consideration

- 14.1 *A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customer positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.*
- 14.2 *A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.*
- 14.3 *A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.*
- 14.4 *A CCP should disclose its rules, policies and procedures relating to the segregation and portability of a participant's customer positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraint, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customer positions and related collateral.*

Principle 15

General business risk

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

Key consideration

15.1 *An FMI should have robust management and control systems to identify, monitor and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.*

- To ensure that TSD has appropriate risk management, TSD Board has set up the risk management framework. The general business risk and strategic risk management includes not only the process of reviewing and recommending by the Risk Management Committee, but also monitoring the implementation of strategic plans related to key objectives in each aspect, including new services. These include the regular business progress and financial status reports to the TSD Board. In addition, TSD board takes the crucial role to ensure that, aside from relevant risks due to CSD functions, the ongoing operations of TSD are performed according to the approved TSD risk management framework.
- TSD monitors and manages its general business risks as follows:

Key Staff risk

To prevent from future plausible disaster from losing key staff, there should be the reporting up to the executives and cooperation among the operational staff. In addition, operation manual has been in place and regularly updated to ensure operation capability and standard of service. Mandatory vacation and rotation of duty among staff are implemented to manage the staff dependency.

Fraud risk

To prevent fraud of daily operation, hierarchical management and control have to be set up to manage risks and maintain services standard. TSD implements policies and procedures for preventing fraud including establishing code of conduct and robust operational controls.

Technology and operation risk

See Principle 17.

In addition, SET has set up its control system over TSD's general business risks that may arise from general business operations. The SET internal audit team, reported directly to SET Audit Committee, takes an important role in auditing business operations by using continuous auditing program which mainly focuses on the securities depository system such as the deposit/ withdrawal/transfer of securities, fee calculation segregation of duty, authority to access data, etc.

Moreover, Risk Management Department of SET also monitors and assesses potential impact of missing the key strategic plan.

- 15.2 *An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity that an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.*

TSD's equity is adequate for continuity of its operations and services (see detailed answer in key consideration 3). TSD's equity is managed under SET investment policies. Moreover, to ensure the soundness of TSD financial status, monthly financial statement has been monitored based on the key performance focusing on both cost and income. The cost/income ratio is then reported to the executives for evaluating the corporate expense trend.

- 15.3 *An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.*

Recovery or orderly wind-down plan

In connection with TCH's clearing and settlement, TSD performs securities depository function which is a part of crucial market infrastructure. Therefore, SET, TCH and TSD have jointly developed the business continuity plan for the Thai capital market. Under the plan, both business and technology aspects are taken into consideration to ensure that TSD can continuously provide services to the Thai capital market. This business continuity plan must be tested with related parties at least once a year.

TSD's recovery and wind-down plan framework has been approved by TSD Board.

Resource

The SEC requires that TSD, as a central depository, have sufficient financial resources for the proper performance of its operation. While operating under the SET group, TSD's equity is sufficient to cover more than 6 months of operational expenses and is safely kept in the form of high quality and sufficient liquid assets. According to current financial statement, TSD's total equity is sufficient to cover more than 6 months of operational expenses

As TSD does not perform CCP function, it is not necessary for TSD to designate the resources to cover participant defaults. Moreover, as a SET subsidiary, any loss arising from TSD current business has also been covered by the SET group's insurance.

- 15.4 *Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expense under a range of scenarios, including in adverse market conditions.*

TSD's equity is invested in high quality assets. As an affiliated company, the investment will be managed by SET's investment committee. As there may appear to have market risk from investment, the committee has set up investment principles that classify types of securities to be invested where each securities type will be limited to their risks, both liquidity and market risks. For instance, according to the SET group's investment policy, TSD's equity is able to invest only in government bond and high grade (A- up) corporate bond to maintain quality of assets.

All TSD's equity is managed by fund manager appointed by SET investment committee. Practically, it is the fund manager's fiduciary duty to liquidate client's assets as needed into cash with best effort to minimize loss of value in adverse market conditions. SET investment team uses this performance as one of the criteria in the fund manager selection.

- 15.5 *An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.*

TSD has reviewed and also projected budget in advance in accordance with future business plan annually. Moreover, based on estimated budget, TSD also determines sufficient level of equity to cover more than 6 months of operational expenses. In practice, if there is the tendency of shortfalls in equity, TSD can ask for:

- SET's allowance to adjust dividend payout ratio to SET.
- SET Board's approval to support additional funds in case that the funding shortfall is considered to be a significant amount.

TSD Board will consider the necessity of raising fund before submitting the issue for approval of SET's Board.

Principle 16

Custody and investment risks

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

Key consideration

16.1 *An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.*

As the only CSD in Thailand, TSD provides a depository-related services. Apart from those securities deposited in CSD system. TSD does not accept other assets of its depositors. As for TSD's own assets, TSD, as a subsidiary of SET, pursues the SET group's cash & investment pooling policy. SET and its subsidiaries, including TSD, keep all investment assets in custodian banks which are regulated and designated as qualified commercial banks by Bank of Thailand. The custodian banks are selected and reviewed by SET custodian and procurement committee. The criteria of custodian bank selection are mainly based on regulatory, technical and financial aspects such as

- Under supervision of Bank of Thailand
- The effectiveness of fund transfer
- The system linkage with Bank of Thailand Automated High-value Transfer Network (BAHTNET) and service fee, etc.

The SET investment team also closely monitors the performance of the custodians and asset management companies who are appointed to manage the SET group's asset.

16.2 *An FMI should have prompt access to its assets and the assets provided by participants, when required.*

TSD neither performs CCP function, holds securities issued in any other jurisdictions, nor is counterparty of any transaction. Therefore, there is no risks arising from TSD's activities and as such no need to call for any asset due to risk management perspectives.

16.3 An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

TSD's equity is invested in high quality assets. TSD's investment asset is kept and custodial with the well-performed Custodian Bank. As an affiliated company, the investment will be managed by SET's investment committee which also evaluate the financial soundness and operation efficiency of the Custodian Bank on a regular basis

16.4 An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

- TSD's own investment is consistent with the overall risk management strategy set out by the parent company, The Stock Exchange of Thailand. SET's investment portfolio, which is managed by the Investment Committee, operates under investment policies and strategic asset allocation as approved by the SET Board. The policies and strategic asset allocation are reviewed quarterly. SET monitors the investment risk status of its portfolio and reports such status to the board and Risk Management Committee monthly to ensure that risk remains within acceptable levels.
- As there may appear to have market risk from investment, the committee has set up investment principles that classify types of securities to be invested where each securities type will be limited to their risks, both liquidity and market risks.
- Under SET investment policy, TSDs assets will be managed investment risk by diversifying into several financial instruments and limiting the proportion given to each financial institution and issuer to ensure that the exposure affecting investment results will be limited. The value-at-risk technique is used to ensure that the aggregate portfolio risk is within the limit structure.

All TSD's own investment is managed by fund manager appointed by SET investment committee (SET IC). To ensure liquidity and mitigate price impact from market movement, SET IC will approve investment guideline and benchmark which allow fund manager to investment mainly in government bond. Practically, it is the fund manager's fiduciary duty to liquidate client's assets as needed into cash with best effort to minimize loss of value in adverse market conditions. SET investment team uses this performance as one of the criteria in the fund manager selection.

Principle 17

Operational risk

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

Key consideration

17.1 *An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures and controls in order to identify, monitor and manage operational risks.*

- The TSD Board has approved enterprise risk management framework including operational risk management. This framework specifies policies, roles and responsibilities at all levels, procedures and controls of such risk. Risk management process has been implemented according to those specified such as event identification, risk assessment, risk response, control activities, etc. The framework also specifies controls of risks arising from people, process, technology and external factors. TSD uses Risk and Control Self-assessment (RCSA) as a tool for operational risk management.
- TSD analyzes, evaluates, monitors and manages operational risk, which results from errors in using people, internal processes, technology and/or external factors. All functional areas assess their risks and adequacy of the internal controls that have been in place through RCSA. Action plans are then formulated and monitored on a regular basis. Realizing the necessity to provide efficient service to the market, TSD focuses on monitoring and managing risks that may affect crucial computer systems. This includes standard procedures of incident management, root cause analysis and solution-finding in order to provide continuous services.
- Management identifies and assesses risk in accordance with criteria established by the business units involved. Management also provides measures to manage the risk within an acceptable level, as well as monitoring and reporting on the risk status. In addition, management regularly reviews the adequacy and efficiency of mitigation measures to ensure that SET can handle incidents in a timely manner.

- For the resilient and seamless operational implementation, there are operational manuals, roles and responsibilities of staff and the hierarchical management, code of authorization, self-auditing (entry and authorized by different users), as well as timely internal and external audit. The procedures are placed to make sure that all operational risks will be least plausible and under management control. In addition, the SET group, including TSD, also implements mandatory annual leave for all staff to ensure that the substitute staff is able to perform according to the operation manual.
- By conducting RCSA among the staff, TSD has assessed its risk arising from “People” into 4 ways: human error, key personnel loss, fraud and data breach, which allows TSD to determine its risk acceptance level and corrective measures. Apart from user manuals, the code of authorization and skill development training courses are also put in place to enhance their capabilities and mitigate the effects of high personnel turnover or key-person risk. Incident report and timely audit are also processed to ensure performance excellence.
- In terms of operational systems, the RMU continues to promote risk management culture among SET executives and employees. The operational system has been well-designed according to business needs while keeping robustness and resiliency of the system established by the business continuity management systems of the SET group based on ISO 22301.
- Under the SET group, methodologies for systems development and program changes, specifying approval, testing and sign-off requirements, are used for applications developments or maintenance of existing programs. Changes to system software are authorized and widely tested with related parties for acceptance before launch.
- The SET’s Risk Management Unit (RMU) regularly monitors and reports the risk status to the management and TSD Board and reports performance of risk management to the RMC and Audit Committee quarterly.

TSD’s operational risk is part of corporate risk profile of the SET group. SET internal audit department (“IA”) always performs an annual continuous audit on TSD’s operation, In addition, the IT audit of the systems is also required to conduct once a year.

17.2 An FMI’s board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI’s operational risk-management framework. Systems, operational policies, procedures and controls should be reviewed, audited and tested periodically and after significant changes.

- Appointed by the SET Board, the Risk Management Committee has been established at the level of the whole exchange and its affiliates, including TSD. They are laying down general risk policies applicable to the business and performance of the whole group of companies.

The Risk Management Department of SET regularly monitors and reports the risk status to the management and TSD Board and reports the risk operations to the Risk Management Committee and Audit Committee quarterly. In addition, the Risk Management

Department continues to promote risk management culture among the SET group's executives and employees.

- TSD Board focuses on the importance of risk management and approved risk management framework to effectively manage enterprise-wide risks. The framework defines the roles and responsibilities for addressing every type of risks including operational risk. Systems, procedures and controls are reviewed by all risk owners periodically and after significant changes. TSD's board has endorsed the operational risk management framework as a guideline of doing its business. The framework will be reviewed yearly. Risk management department is in charge of reporting the risk status to the TSD Board.
- Realizing the importance of sufficiency and suitability of internal control at every level, the SET Board has strongly supported management in setting up transparent working processes considering the segregation of duty, checks and balances, and control, as well as establishing a monitoring system to ensure that management's corrective actions have been implemented. In addition, delegation of authority has been clearly determined and documented. The Board appointed the Audit Committee to supervise and review the SET group's internal control system to ensure conformity with international standards.
- The internal audit department, an independent function, reports directly to the Audit Committee on audit matters, and to the SET president on administrative matters. The internal audit department is an important body to review, monitor and assess the operational work and its risks across all the SET group including TSD. The annual audit plans are approved by TSD Board at the beginning of the year. As prescribed by the general risk policy of the risk management, the internal audit is responsible for auditing and evaluating the adequacy and effectiveness of the internal control systems according to SET's annual audit plan, which has been developed using a risk-based approach. The audit findings and report following the audit findings have to be directly reported to the Audit Committee.
- The external audit also plays an important role in evaluating and giving managerial advice to the executives for any operational risk that may arise to the TSD especially for the issues that tend to have conflict of interest if it has to be audited by the persons in the organization. For instance, SET normally uses external audit to do the penetration test in order to find the weaknesses of the IT system.

17.3 *An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.*

- TSD's operational objective is to provide efficient and high standard depository services to the equities and bonds with profound depository system and managerial risk containment.
- To achieve those objectives, documentation such as user manuals, codes of authorization, etc. are created. TSD also encourages staff at all levels to attend skill development training courses to ensure capabilities of TSD's staff. To fulfill these objectives, TSD has implemented operational reliability procedures such as:

- Providing efficient and user- friendly system for depositors, with high capacity to support enormous amount of transactions
- Placing an alternative site in order to support any dangerous and disastrous event, such as natural disaster, political upheaval, contagious diseases, etc., while smoothing regular businesses
- Timely and regularly testing of business continuity plans, with depositors, and software vendors, etc.
- Incident report and evaluation to determine and remedy any root cause
- Upgrading any obsolete software or hardware to maintain its robustness
- Backing up significant and historical reference of data, information, transactions and logs of all occurrences in depository system.

17.4 An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

- It is a standard IT process of the SET group to run load test and stress test when there is a major change in the system, including TSD system. The process is to ascertain that the system can afford the over normal level transactions or records.
TSD systems meet international standards and offer state-of-the-art, speedy and safe technology to handle all transactions and rising levels of business activities.
- IT operation monitors and reports to the executives regularly on the result of workload capacity. The warning maximum limit at about 80 percent of the hardware capacity has been set up to give warning alarm to review the related system.
IT audit will be conducted to ensure the appropriateness of the testing and monitoring. IT and TSD operation unit has also set-up regular meeting to discuss about issues and system capacity.

17.5 An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

- IT security policies have been implemented for all systems in the SET group including TSD's depository system. The IT security guideline has been approved by Chief IT Officer. In addition, the group focuses on upgrading the operational level of its IT professionals according to global best practice in terms of information security (ISO 27001) and reducing the risk of various threats to make the business run smoothly according to IT management standards (ISO 20000). This helps increasing efficiency and service to reduce operational cost and increase customer satisfaction. TSD uses international IT governance guidelines to develop applications for working system operations, determine IT security policy, and review work procedures to strike a balance between control and flexibility.
- There is a control of access to restricted sites or hardware areas, including working area of significant system for fund transfer/processing. No unauthorized personnel are allowed to enter or do anything. The sites specified for special purpose, such as an alternate site for

business continuity plan or disaster recovery plan, are prepared to control the accessibility. Only exclusive team of staff is assigned to run operations.

Working areas for TSD system are separate from outsiders' areas. The use of computer and its facilities is to be password logged-in, or automatically logged out when not being used for a certain period.

- Access control policies are established and access control software and monitoring procedures do exist to prevent inadvertent or unauthorized access to systems software, application programs and data.

Sample of information security procedure:

- Information, transactions, records of TSD activities can be accessed only by authorized personnel with user/password of their own. Each personnel is assigned a limited scope of access to each group of function. No entry to other functions is allowed
- Data leakage prevention has been established by IT security for preventing any leak of data by monitoring the copying, retrieving, deleting, and many others by any person not relevant to that system.
- System or software developed by outside vendors has to comply with the SET security policy as well as being tested not to be harmful to the main functions.
- Information and records are daily and timely backed up in a secured means of data storage, and stored in safe place.
- Critical system is designed to be closed-end system, where depositors must access through proprietary network.
- Automatic expiry of system users' passwords is set in order to make sure that no unintentional user can learn to access the system data.

17.6 *An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.*

- As the important market infrastructure in the Thai capital market, the SET group including TSD realizes the vital role to provide continuity of service for all core functions: trading, clearing and depository. Business Continuity Plan (BCP) exists to facilitate resumption of critical business functions in the event of a disaster. The Business Continuity Plan not only covers the loss of premises, critical persons, failure of information communication & technology, vital records, but also the arrangement to accommodate participants in case of loss of their site.

- A business continuity plan, designed to provide reasonable assurance that processing of critical applications can continue, exists and is tested at least annually. There are off-site facilities to enable the SET group to implement the plan.
- The BCP assumes various necessary scenarios, with other related functions such as the banking system, the Bank of Thailand payment facilities and member connectivity. The assumption for BCP test each time has been set up for rehearsal covering disastrous plausible incidents, from natural disaster to specific failure of electrical power supply, prolonged network failure / downtime, or contagious disease spread over to one half of workforce. If the test of alternate site and back-up operational IT has been implemented, it is expected that all data and transactions of critical functions will be recalled back to normal operation by no later than 2 hours.
- Data and software are backed up daily and stored in a secure off-site location. Back-up data communications capabilities for critical links exist and are tested regularly with Related Parties. For data resumption, all exchange's main functions, including TSD, are all simultaneously backed up, enabling all transactions and data to commit real-time recovery. By the end of each day, data will be restored.
- Environmental control systems and an emergency power supply (generator) are in place at the data center. There is also an uninterruptible power supply (UPS).
- TSD has set up call tree as the procedure for internal communication in disruption period and addressed a designated person to inform the situation with external party.
- The SET group operates its own computer systems, both primary and alternate sites. The alternate sites will be ready to be used for IT system, office supply and facilities, as well as its location far enough from the primary site and still accessible by BCP team.

The SET group including TSD tests the business continuity plan (BCP) with related parties, brokers, clearing members, depositors, settlement banks and the Bank of Thailand annually. The BCP includes the test of having alternative sites to handle and support operations in case of disruptive events. The BCP test covers the readiness of IT systems, operational staff, premises and facilities to perform all critical business functions such as trading, surveillance, clearing & settlement and depository functions, in order to seamlessly provide services to members/participants. The test will be designed to be able to test the production and/or back-up run with the concerned parties' backup and/or production, or vice versa. After the BCP testing, risk management department is responsible for being a center to report the test results to TSD Board. Moreover, internal audit department provides the independent view of their observation of BCP testing.

17.7 An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor and manage the risks its operations might pose to other FMIs.

- Risks that depositors may pose to its operations are mitigated by regular test of disaster recovery plan that runs at least once a year.



- Currently, TSD has not outsourced to external service provider.
- At present, TSD has linkage with TCH, acting as CCP, and Bank of Thailand who provides payment system. TCH who is also the SET subsidiary has been using the same Business continuity arrangement as TSD. While Bank of Thailand and the SET group, TSD and TCH also conduct the BCP test together every year.

Principle 18

Access and participation requirements

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

Key consideration

18.1 *An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.*

- TSD allows fair and open access to its services and has publicly announced depositor's admission criteria in its websites, under the rules and regulations. In general, the depositor must have a system that can be connected to TSD's system and must be a person who is permitted to be a depositor by TSD. These are:
 - (1) Bank of Thailand
 - (2) Securities companies
 - (3) Financial institutions under the law governing financial institution businesses
 - (4) Life or non-life insurers under the law governing life or non-life insurance
 - (5) Mutual fund trustee, representative of debenture holders, custodian of securities, and issuer of depository receipts
 - (6) Issuers of securities
 - (7) Other juristic persons as prescribed by TSD.
- All TSD depositors are subject to the same access criteria.

18.2 *An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.*

- Membership criteria such as legal requirements, operational capability and IT readiness are laid down in order to make sure that the depositor are not inducing risk to TSD and are well regulated in order to ensure the investors' asset protection.

- The criteria of TSD depositor as well as the roles and responsibilities are given in the rules and regulations and also disclosed in TSD website.
- The access requirement is determined by TSD Board and approved by the SEC to ensure fairness. TSD will review the depositor admission rules when:
 - (1) Rules are no longer applicable or necessary
 - (2) There is a significant change to TSD service

18.3 *An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.*

- TSD has the procedure of checks and balances with the depositors on every business day in TSD rules which clearly state that it is the depositor's obligations to check the accuracy of the information on the balance of securities and the conduct of transactions in the report delivered by TSD to the depositor. In case where any information is inaccurate, incomplete, or not up-to-date, the depositor shall notify the TSD of the matter within the next business day of the date the depositor is aware of such inaccuracy.
- In terms of IT risk, depositors must configure their system in line with TSD standard. Based on the configuration, depositors will be able to access services they requested only. In addition, IT staff monitors the status of connection regularly.
- If any depositor is in violation of or non-compliance with Securities and Exchange Act, SEC's regulations, TSD's rules, circular letters or orders, TSD may impose any of the following penalties:
 - (1) warning
 - (2) probation
 - (3) fine
 - (4) limitation of the scope of its use of TSD's services
 - (5) temporary suspension of the provision of TSD's services
 - (6) termination of being a depositor; and
 - (7) any act as TSD deems appropriate.

In the events that may cause a depositor to be terminated, TSD has also disclosed an order to terminate the status of the depositor due to any of the following events. The depositor:

- (1) is not qualified as a depositor;
- (2) fails to pay any fee or expense to TSD for two consecutive periods
- (3) is unable to operate its business as it has been ordered to suspend business operation or is under receivership or is bankrupt or by other similar reasons; and
- (4) is under liquidation for dissolution.



In this regard, when TSD imposes the suspension or termination on its depositors, TSD will inform the penalty of membership to such depositor and others, as well as publicly announce the penalty through appropriate channels.

- Termination of depositor are the result of 2 feasible causes below. TSD will use different procedures to manage the termination as follows:
 - (1) upon request of the depositor required to notify TSD in advance, the withdrawal or transfer of all of its securities account, TSD will then inform the termination and close all securities accounts of such depositor.
 - (2) by the order of TSD, which depositor is required to submits/records the list of securities owners to TSD so that TSD will communicate to the registrar to issue securities certificate

Principle 19

Tiered participation arrangement

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

The principle is not applicable to TSD, as TSD has no tiered participation.

Key consideration

- 19.1 *An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.*
- 19.2 *An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.*
- 19.3 *An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.*
- 19.4 *An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.*

Principle 20

FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor and manage link-related risks.

Key consideration

- 20.1 *Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.*
- 20.2 *A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.*
- 20.3 *Linked CSDs should measure, monitor and manage the credit and liquidity risks arising from each other. Any credit extension between CSDs should be covered fully with high-quality collateral and be subject to limits.*

TSD has only linked with 1 local FMI, namely TCH, who acts as the sole CCP in Thailand. The rationale for established the link is to facilitate the securities settlement in Thailand since TSD is the sole CSD in Thailand. As a consequence, arrangements have been established among the links. All material perspectives have been addressed in legal agreements under Thai law for examples, duties and liability, operational process, services schedule, reporting, fee and confidentiality etc. Above all, finality of securities settlement has also been clearly stated in the rules and regulations as follows;

- TSD shall transfer of securities in accordance with clearing report prepared by TCH and within the securities delivery period designated by TCH.
- The transfer of securities shall be valid when TSD has correctly, due to TCH's report, delivered securities of the depositor or the depositor's customer who has the duty to deliver securities to TCH; and delivered such securities from TCH to the depositor or the depositor's customer who is entitled to take such delivery
- TSD shall record such transaction in the securities account of the depositor when receiving confirmation of the settlement from TCH.
- When the transfer of securities becomes valid, the depositor may not revoke such transaction

In addition, to ensure a high degree of security on this matter, the regular IT audit has included the monitoring compliances among the link. Also, BCP and DRP test have already covered the link between TSD and TCH in order to mitigate operational risk. Besides, as acting only as CSD and SSS, TSD has no exposure to any credit risk and liquidity risk due to the link.

- 20.4 Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.*
- 20.5 An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.*
- 20.6 An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal and operational risks) arising from the use of the intermediary.*
- 20.7 Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess and manage the risks of the collective link arrangement.*
- 20.8 Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.*
- 20.9 A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.*

Principle 21

Efficiency and effectiveness

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

Key consideration

21.1 An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

In order to serve depositors' needs, TSD carefully considers the requirements, necessity and demand for operational systems or procedural implementation with depositors before the launch. By setting a session to conduct a focus group, such as through professional clubs/associations vendors' forum and general public hearings from the whole group of depositors, TSD can get views, requirements and problems to be considered for the development.

The consideration on issue of depositor's needs is not only on the development aspects but also including service fees and costs that will affect the industry. The basics for laying down fees charged to depositors will be based on reasonable and competitive costs.

21.2 An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations and business priorities.

- As a sole central depository in Thailand, TSD aims to provide services with effectiveness, promote continuing development and match its service towards i.e. international standard, business priorities, sound risk management and appropriate technology.
- TSD always set a long-term, medium-term and short-term goal regarding its objectives. Each year, TSD communicates the plan with depositors, proposes and consults in detail. Depositors can raise issues of their concerns and TSD will incorporate their comments before posting a timeline.
- Once all the plans are listed out, TSD will prioritize them based on priority and TSD resources, then request depositor's requirements and develop the service. During the development time, depositors will get updated regularly. Before launching new service,

depositors will test with TSD to ensure that all system involving in the process work smoothly.

21.3 An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.

- TSD conducts customer satisfaction survey annually from depositors' top management and staff level. In each service, there is 6 measurements.
 - Overview
 - Operational system
 - Quality of service
 - Information dispersion
 - Staff service
 - Other : Open-ended questions/recommendations
- The review of the efficiency and effectiveness of plans and procedures are undertaken by surveying through customer satisfaction surveys. From the survey, TSD can note concerns from depositors and level of seriousness. These statistics and issues will then be raised to executives to handle policy issues, if necessary.
- The comments and suggestions are always useful for improving the process through executives' meetings, in various forms of committees, such as business development, strategic body, risk management, governance, product development, etc.
- In addition, statistics of depository services, the progress of business development plan and major incident event will be reported to TSD Board on a quarterly basis in order to ensure efficiency and effectiveness of services operated.

Principle 22

Communication procedures and standards

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

Key consideration

22.1 *An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.*

- At present, communication channels between TSD and relevant parties are conducted via various channels:
 - 1) Web browser via HTTPS: web-based application on a secured network where depositor can send any transactions/receive confirmations to/from TSD
 - 2) SET portal allows member to send or receive files to/from TSD*
 - 3) API message allows depositor to send service instruction to TSD and receive message response
 - 4) SWIFT message: channel for depositor to send instruction & receive confirmation/notification for OTC bond settlement and receive corporate actions information through SWIFT network.

SET portal functions similarly with web application but has capacity to support the transfer of file with large size.

In practice, TSD provides SWIFT communication for depositors who prefer international channel/standard which message specification is complied with ISO standard. While for local depositors, they have options to use text file upload or API message in proprietary standard format to communicate with TSD based on their system preferences.

Apart from this, TSD also has a specific linkage to the central bank's BAHTNET system for real-time gross settlement transactions.

To accommodate the various message formats of communication as preferred by depository members, TSD facilitates the conversion for further data processing in order to harmonize the usage of different message formats and communication channels.

In addition, to increase efficiency by adopting straight through processing as well as minimize manual interventions and risks in depository process, TSD has also adopted international reference codes and communication standards as follows:

- 1) ISIN* (ISO 6166): a reference data of securities products for the purpose of tracking transaction consistently across markets worldwide.

*TSD is Association of National Numbering Agencies (ANNA) member

- 2) BIC Code: an international identifier of financial and non-financial institutions to facilitate automated processing of transaction.
- 3) ISO 150022: a message standard for the instruction routed between TSD and depositors.
- 4) ISO 20022: a new message standard for the message routed via RTGS linkage (Bank of Thailand's BATHNET system). The adoption of ISO20022 began to implement on August, 15 2022. Be noted that the adoption of ISO20022 shall apply only the messages routed between TSD and BOT's system, while the message format transmitted between depositors and TSD remain the same.

Principle 23

Disclosure of rules, key procedures and market data

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

Key consideration

23.1 *An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.*

- Documents comprised TSD's rules and procedures are fully disclosed to participants; Rules, Announcement, Circulation, Contractual agreements, Handbooks and guides and General information

Before the enforcement date, they will be circulated to all depositors in advance. These depository rules and procedures are disclosed in the TSD website: www.set.or.th/tsd.

These also include hearing presentation, general information, news and public relations relating to CSD.

- TSD provides some specific information such as user manuals, test scenarios, test result reports, circular letters to depositors through internal web portal or emails. Username and password are needed to retrieve such information.
- To ensure that TSD rules and procedures are clear and comprehensive, the process for formation or changing its rules is reviewed by both internal and external entities. TSD sets regular meetings with depositors to communicate new plans, regulatory changes, new system launching, and also gather views and comments from them. TSD has sometimes conducted meetings with some focused groups, who have significant impact from rule change, to make sure that requirements can be properly served.

Apart from discussion with related stakeholders, TSD also establishes the internal procedure to consider all related regulatory/legal issues with legal department. As a SET subsidiary, TSD has SET legal department to conduct the necessary legal analysis and, where required,

TSD always consults with the relevant agencies to ensure that its regulations are consistent and enforceable under the relevant Thai law.

In addition, according to clause 36 of the SEC regulation (No. Tor Thor. 32/2559), proposed amendments to the rules of securities depository shall come into force upon approval of the Capital Market Supervisory Board who will consider the suitability of the amendments based on the investor protection, fairness, transparency, and any risk related to post-traded service.

- The emergency situations affecting the operation (these are: natural disaster, incident due to policy of government / regulatory agency, problems in the processing system of the communication system and other events that may affect the TSD's depository system), and actions of TSD upon occurrence of such event (such as stop providing services, change the procedures and conditions, amend or cancel particular transactions in the depository system, etc.) and the procedures that TSD will undertake have been clearly defined relating to TSD's rules and regulations.

Also, the communication through circulars is also put in place to notify depositors for the situation as well as remedial actions on a timely basis.

In addition, TSD has also clearly stated in the rules for its responsibility of the actions' outcome in resolving the emergency situations and its remedial actions so that the depositors will be aware of its impact and risks that it may have to bear from the consequence of TSD actions under such event

23.2 An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.

- System designs and operations are described in document form as a user manual. Depositors will receive from direct email or can retrieve from web portal for future references. To become a TSD's depositor, an applicant agrees to abide and comply with TSD rules defining their rights and obligations and also has to take a test and will be trained for the process and procedures, where TSD can evaluate risks or impact from its operational system.
- With respect to securities depository, TSD has disclosed the degree of discretion it can exercise over key decisions that directly affect the operation of the system, depositors' right and responsibility in its rules as mentioned in key consideration 1.

In case where TSD takes any appropriate act under its rules and procedures for the purpose of resolving the situation, the depositor shall neither claim a compensation for any damage

which is or might be caused by such action, nor do anything which is an opposition to or non-cooperation with TSD in this regard.

23.3 An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.

- TSD has set up regular training courses to members every time there is a major change or launch of new services, including procedural implementation. The training is widely conducted for all concerned parties and depositors who have direct concern on the change.
- Depositors are able to recheck their understanding to the regulations, procedures from the TSD's simplified version of some rules. The intensive training to members is set up, if necessary, for their full understanding and ability to proceed. Any regulatory announcement is well prescribed into the format of guidelines, timetable, step-by-step process, making it easy to follow.
- In addition, each depositor has been assigned a responsible TSD staff person. In case a depositor needs a clarification on rules, procedures and risks, depositor can contact the key staff. When question arises, TSD will provide clarification promptly.
- Where depositors breach the TSD rules due to lack of understanding or human error, TSD may issue a warning letter or impose fine to such depositor in order to emphasize depositor duties, raise the awareness of cost arising from such mistake, and recommend good practices according to TSD rules. If necessary, one-on-one meeting will be set-up to help clarify the understanding on rules and notifications, find root cause as well as the procedure to prevent the breach

23.4 An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.

- All fees and fines are to be reviewed and approved by the TSD Board before launching. TSD has compared the relevant costs and determined competitive prices. By doing so, all information from the costs that may arise, such as systems development, workforce implementation and cost of running business for comparison and decision making have been gathered.
- For the process of fee change or fee setting for new service, TSD must conduct a hearing meeting and depositors must agree for the fee before implementing. If any exclusive discount or specific fee in some special cases will be used, they must also be proposed to the Board for approval before launching.

- TSD has publicly disclosed their fees, fines and associated expenses charging to depositors in the websites so that depositors/related stakeholders are able to compare the fees across similar FMIs.

23.5 An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

- TSD has disclosed its CPSS-IOSCO disclosure framework for the PFMI both qualitative and quantitative in English language version on TSD website and annual report. The updates of the CPSS-IOSCO disclosure framework will be carried out on a regular basis.
- Apart from the rules and regulations disclosed on TSD website, the public is provided information on the description of business services of CSD, development plans, and significant statistics such as number/value of securities deposited in the securities depository system, number of companies/securities/shareholders in the securities registration system, number of investors/securities under e-dividend service, etc. This information is disclosed in the annual report, both in Thai and English versions.
- ISIN code and CFI issued by TSD has been provided on TSD website and updated on a daily basis. Participant name list has also been provided in the website and updated as soon as the profile takes effect.

Principle 24

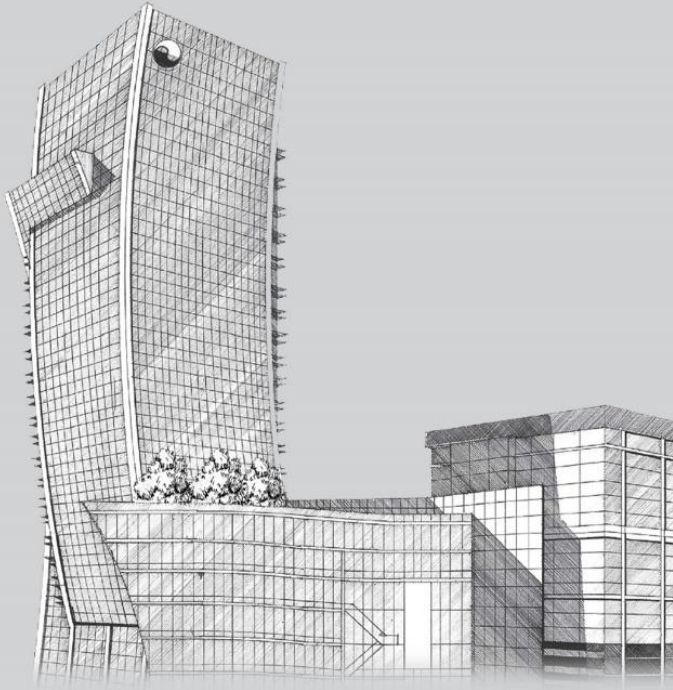
Disclosure of market data by trade repositories (TR)

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

This principle is not applicable to TSD.

Key consideration

- 24.1 *A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.*
- 24.2 *A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.*
- 24.3 *A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analyzed.*



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