Taipei Exchange
Principles for Financial Market Infrastructure Disclosure Report
(CCP&SSS)

Responding institution: Taipei Exchange
Jurisdiction(s) in which the FMI operates: Taiwan
Authority(ies) regulating, supervising or overseeing the FMI: Financial Supervisory Commission, R.O.C.(Taiwan)
The date of this disclosure is 2021.5.21
This disclosure can also be found at http://www.tpex.org.tw
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I. Executive summary

The Taipei Exchange (TPEx) is responsible for completing clearing and settlement of the trading in its market. In addition to the provision of the trading market for listed products and management of the market, TPEx has two other major functions: a Central Counterparty (CCP) providing clearing services and settlement guarantee, and a Securities Settlement System (SSS) ensuring transfer and delivery of funds and securities in settlement. TPEx provides the above services across various products, such as stocks, exchange traded funds (ETFs), warrants, and convertible/exchangeable bonds that are traded on TPEx.

TPEx plays an important role in providing a financial trading platform in Taiwan's capital market. This disclosure document explains how TPEx is aligned with and observes the Principles for Financial Market Infrastructure (PFMI) developed by the Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commission (CPSS-IOSCO).

Overview of TPEx

Legal foundation and regulatory framework

TPEx's clearing and settlement framework has solid legal foundations and sound corporate governance structure. TPEx provides legal certainty in every important activity. Besides enacting relevant provisions in the Securities and Exchange Act, TPEx provides clear and comprehensive rules, in addition to procedures and contracts of clearing and settlement in its role as a CCP and SSS. The consistency of legal rules has been effectively achieved through necessary approvals or reviews by the regulatory body as well as prior consultation with stakeholders.

TPEx's regulatory body is the Securities and Futures Bureau (SFB) of the Financial Supervisory Commission (FSC). SFB is responsible for planning and executing the supervision and management of securities and futures markets. FSC is the highest supervisory body of Taiwan's financial market.

As a CCP and SSS, TPEx has prioritized safety and efficiency. TPEx is a non-profit organization led by its Board, of which TPEx's Chairman and Managing Director & CEO are also members. Two third of TPEx's Board has been assigned by the SFB as a supervision measure. Additionally, TPEx has also enhanced its internal control by establishing an Internal Audit Office which reports directly to the Board. Both external and internal supervision form a robust corporate governance structure to support the stability of the financial system and promote the public interest of the related parties. The corporate governance structure has also been disclosed in the annual report.

TPEx's Clearing and Settlement Overview

TPEx implements multilateral net settlement on a daily basis. Securities firms settle their daily net-long or net-short positions with TPEx. The settlement cycle is T+2. TPEx produces the receivable and payable net amounts of securities and funds between securities firms and TPEx. The unsettled position cannot be deferred to the next day. Securities firms have to complete securities settlement before 10:00 am and funds settlement before 11:00 am. All the securities firms are well informed of the deadlines and able to follow them. Once the funds and securities settlement are completed, they are irrevocable. TPEx penalizes the securities firms who cannot follow the settlement timeframe without any acceptable explanation.

In the settlement process, as an SSS, TPEx entrusts the Taiwan Depository and Clearing Corporation (TDCC) to deal with the receipt and transfer of securities. The funds-transfer is completed via the Central Bank of the ROC Electronic Interbank Funds Transfer and Settlement System (CIFS). TPEx uses the Fund and Securities Transfer System and manages the settlement process by sending instructions to TDCC and the Central Bank to process the delivery of securities and funds.

Securities firms unable to deliver securities to TDCC before 10:00 am on the settlement day can apply to TPEx to borrow securities before 10:00 am of T+2, by reporting reasons such as erroneous trades, investors' default, or delayed settlement (failed trade) of overseas investors. If the securities firms fail to make the above reporting, TPEx will automatically initiate securities borrowing after 10:00 am to cover a securities shortfall of the securities firms. In both cases, securities firms have to deposit collateral with TPEx for the securities borrowed; TPEx stipulates clear rules for acceptable collateral, collateral haircuts, and calculates collateral value by mark-to-market. The current operations of the settlement-driven Securities Borrowing System meet the needs of the market.

TPEx has stipulated requirements and procedures to handle the default of securities firms. The procedures are workable as they are the result of lessons learned from past experience. TPEx conducts reviews as necessary to ensure procedures and requirements are up to date and practicable.

Risk Management

In order to ensure a well-functioning securities market and to minimize systemic risk, TPEx actively manages all its key risks in its capacity as a CCP and SSS such as credit, liquidity, custodial, operational and general business risks. TPEx's risk management is highly incorporated with the implementation of TPEx's internal control system, under which every department follows the guidelines and conducts examinations of the possible risks arising from different business operations. TPEx's Internal Audit Office reports the results of the above examinations to the Board every quarter and adopts many risk-prevention systems. First, TPEx conducts regular audits of securities firms to prevent credit and liquidity risks. Second, TPEx holds a daily cross-departmental default-prevention meeting to prevent default risks caused by both investors and securities firms. Third, TPEx has designed a solid financial safeguard system, which is Clearing Fund, to prevent credit, liquidity and general business risk. Fourth, TPEx has established a Business Continuity Plan (BCP) and organized a BCP committee to reduce operational risks.

■ Credit risk

TPEx endeavors to prevent credit risks caused by securities firms, and has undertaken several important measures as follows.

1. Require securities firms to contribute to a Clearing Fund

Every securities firm shall contribute to a Clearing Fund managed by TPEx. The clearing fund contribution of the securities firms is calculated by considering several factors such as the number of branches, business licenses, and market ratio in the previous year in terms of the sum of the net-long and net-short.

To ensure that the contributions of each securities firm is sufficient to cover the risk it might pose to the market, TPEx has implemented a “Monthly Tracking Mechanism”, which requires that the contribution of each securities firm shall not fall under 80% of its average daily VaR in the previous month.

2. Conduct regular risk management measures on securities firms

(1) Risks from operations

TPEx exerts strict financial requirements and conducts general audits on securities firms. TPEx’s Intermediaries Service Department is responsible for managing securities firms’ credit exposures and requires all the securities firms to follow the financials and rules, such as maintaining a certain asset-to-debt ratio and capital adequacy ratio. If a securities firm's net worth is less than its paid-in capital, its trading multiples can be lowered by TPEx. (Trading multiples means the multiples allowed by securities firms in a single day to place trading orders that exceeds its net worth .)

Other than the general audits, TPEx also implements an early warning system, which is based on general risk and special risk indicators, to keep track of the business and financial risks of securities firms. TPEx implements special audits on the securities firms selected through the early warning system and may reduce their trading multiples as a further step. Any securities firm that violates securities regulations will be reported to TPEx’s Enforcement Action Review Conference and further sanctions on the staff might be exerted. These measures are effective in controlling securities firms’ credit risks.

(2)Risks from unsettled positions

Further, TPEx produces VaR value of securities companies every day, which is based on the net-long and net-short trading position of an individual securities firm on T day and T-1 day. The VaR value is the foundation for the monthly review of the amount to be contributed to the Clearing Fund by the individual securities firm.

(3) Risks from clients

- **Control the settlement risks and default risks caused by clients**

For monitoring settlement risks which investors might pose to the securities firms, TPEx tracks the net-long position of each securities firm on T day to see whether such a position exceeds available funds for use by the securities firm. If the amount reaches the threshold, TPEx will require the securities firm to provide a list of the top ten clients with net-long positions. TPEx monitors daily the size of an individual investor's default, and if it reaches a certain level, TPEx will report this to either TPEx's management or the Taiwan Securities Association to take further measures.

- **Hold a cross-departmental daily meeting to prevent default**

A cross-departmental "Prevention of Large Default Meeting" takes place every afternoon of the trading day. It aims to track any possible settlement risk of individual investors who have exceeded their net-long positions over the allowed trading quota permitted by the securities firms. If the result is not acceptable, TPEx will penalize the securities firms and all relevant persons accordingly, or file a report to the regulatory body.

- **Label stocks under disposition measures to caution investors**

To alert investors not to buy a stock which is over-volatile or has an irregular trading pattern, TPEx publicly lists the names of these stocks as "Stock Under Disposition Measures", on which pre-delivery of funds or securities would be imposed before any trading order can occur.

3. Enhance TPEx's ability to face credit risk exposures

In the daily settlement, TPEx adopts a "Funds receipt prior to payment" principle, which means that securities firms shall fulfill their settlement obligations prior to TPEx's payment. TPEx does not use its own funds for advancing any payment to securities firms. "Funds receipt prior to payment" has buffered TPEx from risks caused by the securities firms.

Moreover, TPEx has established a huge Clearing Fund (NT$2 billion) which is sufficient to cover the credit risk caused by the default of a securities firm. The deposit requirements of the Clearing Fund are clearly stipulated in the regulations. The significant financial resources of NT$ 2bn far outnumber the average daily VaR value of all the securities companies combined which is around NT$0.63bn to NT$1.06bn.

■ **Liquidity risk**

TPEx's liquidity risks arise from the fund shortage in the default of the securities firms. In order to maintain sufficient liquid resources to effect settlement, every measure taken in preventing credit risks is also applicable in preventing liquidity risks. Although TPEx has used daily fund transfer system upon the Central Bank's Interbank Funds Transfer System (CIFS), TPEx has not arranged intraday financing from the Central Bank for daily settlement. The CIFS system provides a safe fund-transfer environment for TPEx to handle the liquidity risk.

To ensure that all the financial resources coming from both the securities firms and TPEx are readily available in the form of cash, TPEx maintains financial resources in the form of time deposits, bonds and short-term notes. In addition, TPEx has signed contracts of NT$0.1bn with a bank to obtain secured lines of credit.

■ **General business risk**

General business risks include losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses. TPEx adopts various internal control systems to manage general business risks by incorporating risk management into the internal control system in every department. To hold sufficient liquid net assets to cover potential general business losses, all the current assets, held by TPEx are highly-realizable in the market. The size of those assets is quite large and deemed sufficient to ensure a recovery of any orderly winding-down of critical operations and services.

■ **Custody and investment risks**

TPEx takes responsibility for safeguarding its own assets and securities firms' deposited assets (ex. Clearing Fund), which are kept in separate accounts and are only allowed to be deposited in limited forms, such as time deposits, bonds, and short-term notes. TPEx minimizes loss risk by adopting temperate investment strategies, which follow TPEx's "Utilization of Capital Guidelines" and are approved by TPEx's Board. This strategy avoids additional risks arising from investment.

■ **Operational risk**

TPEx has established a sound risk management framework to control operational risk and built an internal control system, which follows the requirements in Regulations Governing the Establishment of Internal Control Systems by Service Enterprises in Securities and Futures Markets. This system contains the elements of identifying operational risk. To ensure that TPEx implements internal control in every business department, TPEx's Internal Audit Office conducts regular monthly audits. Besides risk identification, TPEx also created a Business Continuity Plan (BCP) to assure operational continuity in extreme conditions. The BCP rehearsal is held once every year. TPEx's BCP committee, chaired by TPEx's Managing Director & CEO, examines BCP at least once every year.

TPEx has not stipulated any rules or procedures with respect to the deliveries of physical instruments or commodities, nor provides any service by linking two settlement obligations to eliminate principal risks.

■ **Other relevant practices**

Access and participation requirements

TPEx's market participants are securities firms who have signed the 'Contract for Trading of Securities on the TPEx by a Securities Firm' with TPEx. There are different minimum paid-in capital requirements and any securities firm which meets the requirements may sign the above contract and become a clearing participant to settle with TPEx.

In Taiwan, every securities firm must settle their own trading position with TPEx. TPEx does not have any tiered participation arrangements.

Segregation and Portability

The concern of account segregation and portability has not become an issue in Taiwan. When an investor starts trading listed securities, he/she has to open a depository account in TDCC with his/her legal name and identification, the same as registered with the securities firm. Any movement of securities in the depository account by the investor in one securities firm can only go to the depository account(s) with the same identity in other securities firms. Therefore the securities in an investor's accounts are not comingled with the securities firms' accounts. Regarding a fund transfer, an investor has to open his own bank account in the bank designated by the securities firm. This account is for clearing fund payment and receipt between securities firms and investors. Under the above account structure, the funds and securities owned by the investors can be protected should a securities firm happen to default.

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

This is an update to TPEx's last disclosure document dated April 2019, published pursuant to the CPSS-IOSCO Disclosure framework for financial market infrastructures dated December 2012. This document contains some additions and revisions to the previous document in association with the minor revisions to TPEx's new practices.

III. General background of TPEx

General description of TPEx and the markets it serves

TPEx plays the role of Central Counterparty (CCP) providing clearing services and settlement guarantee, and acts as Securities Settlement System (SSS) ensuring transfer and delivery of funds and securities in settlement. As a CCP, TPEx integrates clearing and settlement services for many products, including TPEx's listed stocks, warrants, exchange-traded funds (ETFs), and convertible/exchangeable corporate bonds.

2020 (Jan-Dec)	Trading Value (NT $bn)	Trading Volume (1bn shares)
Stocks	12,087.07	161.15
Warrants	154.60	120.33
ETFs	415.35	9.69
Convertible/exchangeable corporate bonds	257.94	2.24
ETN	1.95	0.28
Total	12,916.91	293.70

Source: Taipei Exchange

Currently TPEx only provides clearing and settlement services in the cash market. The average daily trading value of stocks from year 2009 to 2020 was around NT$ 12bn to NT$ 52.7bn. Although the total market size has been fluctuated, the clearing and settlement system functions properly and no defaults have occurred before.

General Organization of TPEx

TPEx called its first Boards' meeting on July 28, 1994. The organization was registered as a juristic person on September 26, 1994, and formally established on November 1 of the same year. The initial fund of TPEx was donated by three sponsors, namely the Taiwan Securities Association, Taiwan Stock Exchange, and Taiwan Depository & Clearing Corporation.

TPEx's Board is independent and serves the public interest. The Board is composed of 15 directors and 5 supervisors who are appointed by the Financial Supervisory Commission and selected by sponsors from among sponsors, experts, scholars and securities professionals. Directors and supervisors serving as a representative of a sponsor of the organization shall not be more than one-third of all board members. Directors and supervisors serving as a member representative of the Taiwan Securities Association shall not be less than one third of all Board members. Directors and supervisors serve a term of three years and may be re-appointed.

The Board is the highest executive body of the TPEx. The chairman convenes and presides over Board meetings, and represents the organization as a whole. Under the Board, one Managing Director & CEO manages organization business, while one or two Deputy CEOs along with one Chief Administrative Officer assist the Managing Director & CEO. The supervisors shall oversee the execution of business operations and may investigate business and financial conditions of the organization as well as examine the accounting books and documents from time to time. The TPEx has departments for Startup Incubation, Listing Examination, Listing Supervision, Trading, Market Surveillance, Bond, Information, Intermediaries Service, Administration, Strategy & International Relations as well as an Internal Audit Office that reports directly to the Board.

Legal and Regulatory Framework

The legal foundation of TPEx's clearing and settlement service is built upon the "Securities and Exchange Act", "Regulations Governing Securities Trading on the Taipei Exchange" and "Taipei Exchange Rules Governing Securities Trading on the TPEx". TPEx's regulatory body is the Securities and Futures Bureau (SFB) under the Financial Supervisory Commission (FSC). SFB is responsible for planning and executing supervision and management of securities and futures' market. FSC is the highest supervisory body of Taiwan's financial market.

System Design and Operations

Please refer to the above section of "TPEx's Clearing and Settlement Overview".

IV. Principle-by-principle summary narrative disclosure

Principle 1: Legal basis
An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.
Summary Narrative **Key consideration 1: The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.**

Material aspects and relevant jurisdictions

Taipei Exchange (TPEx), the CCP in Taiwan's securities market, is responsible for clearing and settlement of the trading in TPEx's market. All the major aspects in the process of clearing and settlement have clear legal foundation. Clearing and settlement operations and service provided by TPEx are all within the boundary of Taiwan's jurisdiction.

Legal basis for each material aspect

The legal foundation of TPEx's clearing and settlement can be found in the following acts or regulations;

- **Settlement Guarantee**
  Article 87-1 of Taipei Exchange Rules Governing Securities Trading on the TPEx

- **Multilateral Clearing**
  Article 6 of Taipei Exchange Directions Governing Clearing and Settlement Operations for Securities Traded on the TPEx

- **Financial Resources for Handling Default**
  Article 10 of Regulations Governing Securities Firms

  Article 3,4,13,15,16 of Taipei Exchange Rules for Administration of the Joint Responsibility System Clearing and Settlement Fund

  Articles 2,5,9 of Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund

- **Default Procedures**
  Taipei Exchange Procedures for Handling Default on Settlement Obligations by Securities Firms

The above information has been disclosed in English and Chinese formats on the website of http://www.selaw.com.tw.

Key consideration 2: An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

TPEx's rules, procedures and contracts of clearing and settlement are clear, understandable and consistent with relevant laws and regulation. In addition to the internal review process, most of them have to be submitted to the regulatory body (Securities and Futures Bureau under the Financial Supervisory Commission) for review and approval, or even have to be consulted with the relevant stakeholders in order to achieve clarity and consistency with higher level regulation.
Key consideration 3: An 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. In addition to the review and approval by the regulatory body, or the consultation with the stakeholders, TPEx always publicizes detailed document to explain the relevant backdrop, reasons and legal basis for its activities as well as hosting educational programs, seminars, to market participants and issuing news release. TPEx also provides a user-friendly website for investors in Chinese, English and Japanese.
Key consideration 4: An 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 the FMI under such rules and procedures will not be voided, reversed, or subject to stays TPEx dose not provide any clearing and settlement services in other jurisdictions.
Key consideration 5: An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions. TPEx dose not provide any clearing and settlement services in other jurisdictions.

Principle 2: Governance
An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.
Summary Narrative **Key consideration 1: An FMI should have objectives that place a high**

priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations. TPEx has prioritized "security and efficiency" in the business plan, placing emphasis on security, efficiency and discipline of settlement to protect the interests of securities firms and investors. To further enhance settlement security, TPEx has deposited a certain percentage of its securities transaction charges in the Investors Protect Fund, which aims to compensate investors' loss incurred from the default of securities firms. Further, TPEx has appropriated NT$400 million for the Clearing Fund to reimburse the loss coming from liquidating the position of defaulted securities firms.
Key consideration 2: An 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. **Governance arrangements** TPEx has a Board and management with clear division of responsibility and operating procedures. The Board is the highest executive body of TPEx; the chairman of the Board convenes and presides over Board meetings. TPEx is a public-interest, non-profit organization with a charter as well as business plans drafted at the time of establishment. TPEx's Board is independent and serves the public interest. The Board is composed of 15 directors and 5 supervisors who are appointed by the Financial Supervisory Commission and selected by sponsors from among sponsors, experts, scholars and securities professionals. Directors and supervisors serving as a representative of a sponsor of the organization shall not be more than one third of all directors and supervisors. Directors and supervisors serving as a member representative of the Taiwan Securities Association shall not be less than one third of all directors and supervisors. Directors and supervisors serve a term of three years and may be re-appointed. **Disclosure of governance arrangements** TPEx discloses its corporate governance practices on its website and in annual reports. The appointment of Chairman, Managing Director & CEO, deputy CEO, and department heads as well as the responsibilities of respective departments are detailed in TPEx's charter and

organizational bylaws.

Key consideration 3: The roles and responsibilities of an FMI's 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 conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

<u>Roles and responsibilities of the Board</u>

TPEx has a well-defined organizational structure that delineates internal responsibilities and accountability. The Board is the highest executive body of TPEx. The chairman of the Board convenes and presides over Board meetings, and represents the organization as a whole. Under the Board, one Managing Director & CEO manages organization business, while one or two Deputy CEOs along with one Chief Administrative Officer assist the Managing Director & CEO. The supervisors shall oversee the execution of business operations and may investigate business and financial conditions of the organization as well as examine the accounting books and documents from time to time.

TPEx has established specific operating procedures for the Board, according to which, a Board meeting is held once a month. The chairman convenes and presides Board meetings. Except where otherwise provided in the charter, any resolution made by the Board must have the consent of at least the majority of directors present in a meeting attended by at least the majority of all directors.

When the chairman is unable to attend a Board meeting, the chairman may appoint a director or the directors may elect one person among them to chair the meeting. A director who is unable to attend a Board meeting may appoint another director to act as a proxy. However, a director may represent only one other director in the Board meeting.

All motions for discussion in a Board meeting will be proposed by the management. The agenda of Board meeting should be sent to all directors ten days before the scheduled meeting and filed with the competent authority for record. The competent authority may also dispatch representatives to attend the meeting.

Important matters concerning organizational charter, annual business plan, annual budget and capital expenditure budget will be decided by the Board, and submitted to the competent authority for final approval. In addition, the Board have the right to approve (or examine) the following matters: (1) receipts, expenditures, custody, and use of funds; (2) drafting and implementation of annual business plans; (3) preparation of annual income, budget, and final account statements; (4) drafting of and adjustment to important rules and systems; (5) drafting of internal organization, business management, and appointment and dismissal of key personnel; (6) carrying out of TPEx authorities and responsibilities provided in the Securities and Exchange Act; (7) disposal or hypothecation of real estate; (8) mergers and acquisitions; and (9) other important matters.

Conflicts of Interest

Directors and supervisors with a conflict of interest should recuse themselves from making relevant decisions. However, the preceding provision does not apply to the election of chairman and re-election of directors.

Review of performance

TPEx must report a change of director to the competent authority. The performance of the Board is also under the purview of the competent authority.

Key consideration 4: The board should contain suitable members with the appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s).

According to TPEx's organizational charter, Board of directors and supervisors have to be appointed by the competent authority or selected by sponsors. Members of the Board comprise responsible officers of TPEx, representatives of business associations, representatives of the competent authority and scholars, and therefore the assembly of people from industry, government, and academia shall possess an appropriate mix of skill sets.

TPEx is a non-profit body. Working in the general interest of the public should be the incentive for serving as a director.

Key consideration 5: The roles and responsibilities of management

should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

Roles and responsibilities of management

The Managing Director & CEO is tasked with overseeing the business direction of TPEx as determined by the Board member. TPEx has one or two Deputy CEOs and a Chief Administrative Officer to assist the Managing Director & CEO. TPEx has ten departments and an Internal Audit Office directly under the Board.

Experience, skills and integrity

TPEx ensures that its management has the necessary skills, experiences and integrity through external recruitment and internal promotion. TPEx Managing Director & CEO and General Auditor are recommended by the chairman to the Board and appointed with the consent of the majority of all directors. TPEx deputy CEO, Chief Administrative Officer, heads and deputy heads of departments are recommended by the Managing Director & CEO to the Board. Their appointment and dismissal must be consented to by the majority of all directors. TPEx selects its managerial officers in accordance with the established personnel management rules that the managerial officers must meet certain active and passive qualification requirements before they are recommended to the Board for appointment.

Key consideration 6: The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making 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.

Risk management framework

The Board is the highest executive body of TPEx. The chairman is responsible for convening and presiding Board meetings. The Board meets every month to discuss important motions, for which it may exercise its vested right to approve (examine) important matters. TPEx's Internal Audit Office reports directly to the board. The Internal Audit

Office assists the board of directors and management in examining any deficiency in internal control system, measures the operational performance and efficiency, and makes suggestions for improvement and risk management.

The Internal Audit Office produces an internal audit report and a follow-up report every month according to the established audit plan and reports periodically to the board of directors.

Authority and independence of risk management and audit functions

Internal control system is required in service industry

TPEx is a service enterprise in the securities market, and therefore it follows the "Regulations Governing the Establishment of Internal Control Systems by Service Enterprises in Securities and Futures Markets" to establish an internal control system. TPEx shall follow every internal audit procedure, audit item, schedule and methodology stipulated in the above Regulation. If TPEx does not follow the Regulation, the regulatory body may set a deadline for compliance. Under certain occasions, the regulatory body may require any service enterprise to entrust a CPA to examine the internal control system in its business, and submit the audit reports to the regulatory body.

TPEx has an Internal Audit Office set up which is directly under the Board and has sufficient independence. When internal auditors conduct an audit, they may access relevant documentation, examine the physical assets and question relevant personnel by their vested authority, and the audited department may not refuse inquiries from internal auditors. The Internal Audit Office produces an internal audit report and a follow-up report every month according to the established audit plan and reports periodically to the Board.

Key consideration 7: The board should ensure that the FMI's design, rules, overall strategy, 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.

Identification and consideration of stakeholder interests

Important business of TPEx and newly drafted or revised business rules are all submitted to the Board for discussion. In addition, to protect or uphold the legitimate interests of direct and indirect participants and other relevant stakeholders, TPEx invariably takes overall consideration when carrying out internal discussion over matters such as drafting of rules or making a business decision. When necessary, TPEx would ask the competent authority to be present in these discussion meetings, or invite Taiwan Stock Exchange, Taiwan Depository and Clearing Corporation, Taiwan Futures Exchange, Taiwan Securities Association, and other securities and futures peripheral organizations to join the discussion to make sure decisions made or rules drafted will be implemented smoothly. In addition, TPEx must report any formulated policy or measure to the competent authority for approval. The competent authority also provides effective guidance and supervision over these policies and measures from the overall market perspective.

Disclosure

TPEx discloses its visions, business objectives and work plans on its website. All major decisions are communicated to stakeholders via news release (in print and online), public announcement or correspondence.

Principle 3: Framework for the comprehensive management of risks

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

Summary Narrative

Key consideration 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 in or are borne by the FMI. Risk management frameworks should be subject to periodic review.

Risks that arise in or are borne by the FMI

The risks TPEx faces can be categorized as follows.

- Credit Risk (risks of the trading counterparty not fulfilling its settlement duty, which might cause financial loss to TPEx)
- Liquidity Risk (risks of TPEx not being able to cash in holding assets or acquire enough capital for the purpose of meeting market liquidity needs and completing settlement in extreme market conditions)
- General Business Risk (risks caused from poor execution of business strategies, negative cash flows, or unexpected and excessively large operating expenses)
- Operation Risk (risks caused by internal operations, mistakes made by employees or systems, or other risks causing direct or indirect loss from external events)
- Custody and Investment Risk (risks arising from inappropriate custody methods and investment loss)
- Legal Risk (risks of legal compliance, the conclusion, revision and demise of a contract, and any direct or indirect loss which is caused by a change of the rules)
- Risks from significant disasters (risks arising from accidents or natural disasters which lead to direct and indirect loss)
- Other Risk (risks arising from internal management)

Risk management policies, procedures and systems

TPEx has established a sound risk management mechanism to integrate risk management into the decision making process of each department's business plan. Each department is expected to discern measure, supervise, prevent, and control risks to an acceptable level.

TPEx's risk management policies are implemented along with TPEx's internal control system; its guidelines are followed by every department and examinations are conducted of the possible risks arising from different business operations. TPEx's Internal Audit Office reports the modifications of internal control procedures to the Board semi-annually. To manage all the key risks, TPEx has adopted the following four systems to quench the risks.

TPEx's risk management policies can be summarized as follows.

- **Conduct regular examination by the Intermediaries Service Department**

  This department examines a securities firm's financial situation by checking its financial reports, or executing due diligence if necessary. If the financial conditions of a securities firm fall to a certain level, TPEx may lower the trading multiples of that firm. This measure is for controlling securities firms' credit risks and liquidity risks.

- **Convene a daily cross-departmental meeting to prevent securities market's default**

  Risk indicators are designed by TPEx's different departments, such as Market Surveillance and Intermediaries Service. Each department supervises the risk of securities firms or investors who engage in abnormal trading on that day and reports to the daily cross-departmental meeting to decide on whether further measures of supervision shall be taken.

- **Require securities firms to deposit their portion to Clearing Fund**

  TPEx requires every securities firm to deposit to the Clearing Fund. This measure is important in managing credit and liquidity risk.

- **Establish Business Continuity Plan (BCP)**

  To avoid operational risks caused by sudden market disruption, TPEx has established BCP to manage unexpected situations and continue smooth market operations. BCP rehearsal is held at least once a year, and is supervised by the BCP committee, chaired by TPEx's Managing Director& CEO.

Review of risk management policies, procedures, and systems

TPEx's risk management policies have been built upon our internal control systems. The Internal Audit Office compiles the results of examinations from each department every month and reports to TPEx's Board every quarter. The review of risk management policies is undertaken by TPEx's different departments. Every department has to examine the adequacy of its risk management internal control procedures periodically.

Key consideration 2: An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.

Disciplinary and corrective measures

To manage and contain the risks to securities firms and their clients, TPEx has adopted the following measures.

Risk management tools aimed at securities firms

- **Lower the trading multiples for securities firms under high risk status**

TPEx has established different thresholds for lowering trading multiples where the net worth of a securities firm is less than its paid-in capital (Article 35 of Taipei Exchange Rules Governing Securities Trading on the TPEx). Further, securities firms shall evaluate a customer's investment ability prior to accepting an order for trading for the sake of risk management（Article 34 and 35 of Regulations Governing Securities Firms）.

- **Risk evaluations, ratings and an early warning system**

TPEx's Intermediaries Service Department conducts risk evaluations for securities firms annually. For those who are deemed as having a good performance, TPEx is more likely to approve their applications for new initiatives. TPEx will also remind securities firms of their business risk according to the four-level ratings on securities firms (Taiwan Stock Exchange Corporation Rules Governing Early Warnings for Overall Operational Risk of Securities Firms). Other than the risk evaluations, TPEx also implements an early warning system, which is based on general risk and special risk indicators, to keep track of the business and financial risk of securities companies. TPEx implements special audits on the securities firms selected through the early-warning system.

- **Encourage securities firms to establish internal control system**

TPEx encourages securities firms to establish an internal control system to monitor/manage theirs and their clients' risk. This shall include details of internal auditing, which shall be passed by their Boards. The internal control system shall consist of risk evaluation and elements of control and supervision, which are designed to identify the internal risks in the

TPEx (Articles 2, 5, 7 of Regulations Governing the Establishment of Internal Control Systems by Service Enterprises in Securities and Futures Markets).

Risk management tools aimed at clients

The following measures have been implemented by TPEx.

- **Encourage investors to report unlawful activities in the securities market**

TPEx has initiated TPEx Rules Governing Awards for Reporting Unlawful Activities in the Securities Market to encourage investors to report unlawful activities discovered in the securities market so as to maintain market order and protect investors' interests.

- **Require securities firm to disclose the investment quota of its clients**

When an investor's trading value exceeds a certain threshold, TPEx will ask the securities firm to disclose the investment quota of the investor under observation and to remind securities firms to pay attention to their clients' trading position and relevant risks.

Key consideration 3: An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk management tools to address these risks.

<u>**Material Risk**</u>

As TPEx is the CCP and SSS in its own market, it periodically reviews the possible risk embedded in the market operation with the other FMIs (Taiwan Depository Clearing Corporation [TDCC]), the settlement banks of securities firms, and makes necessary precautionary plans to deal with any unexpected events in the daily operations. TPEx has endeavored to lower that risk by enacting relevant measures in TPEx's Business Continuity Plan.

<u>**Risk management tools**</u>

To manage and control the operational risks of connecting with TDCC, TPEx has signed a cooperation memorandum with Taiwan Stock Exchange, Taiwan's Future Exchange and TDCC. The four parties have achieved agreements in the following three areas.

■ **Report information mutually and actively**

If any party discovers important political and economic events, or cases involving a large default amount, trading glitch or interruption, or any abnormal trading behavior which might endanger market security, the party shall report to the other three parties immediately.

■ **Request on providing confidential information**

Whenever any party receives a request for information from another party, the responding party shall provide obtainable information within the range of the cooperation memorandum agreement.

■ **Operate a cross-market risk management team to supervise abnormal trading conditions**

TPEx has established a cross-market team to deal with severe unforeseen incidents in securities and futures markets. This team has been established to handle communication and coordination during such conditions.

Key consideration 4: An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

<u>Scenarios that may prevent TPEx from providing critical operations and services</u>

In order to prevent emergency and abnormal condition which might threaten the securities market’ s normal operation, TPEx has established a Business Continuity Plan (BCP) and organized a committee to for operating it. Under the guidance of the BCP committee, every department has to begin recovery procedures immediately when take any possible operations disruptions, so as to implement major critical functions and operations before predetermined deadlines.

Recovery or orderly wind-down plans

Based on the BCP, TPEx has established a manageable recovery plan. The BCP can be divided into three stages: normal, crisis handling, and recovery.

- **Normal stage**

  Every department shall practice periodically and examine relevant documents if necessary.

- **Crisis-handling Stage**

  To reduce immediate losses during a crisis, TPEx has set up a crisis-team, chaired by a Deputy CEO. The team shall evaluate the entire condition and determine a strategy to ensure that crisis resolution can be properly processed.

- **Recovery Stage**

  To ensure Mission Critical Activity operate consistently and recover immediately, TPEx's Managing Director & CEO chairs the BCP committee meeting and every department head must be present in that meeting. The Internal Audit Office is responsible for supervising the meeting.

The above BCP plan is reviewed by the BCP committee periodically throughout the year. Revisions are done as needed.

Principle 4: Credit risk
An FMI should effectively measure, monitor, and manage its credit exposure to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. 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 largest participants and their affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions. All other CCPs should maintain, at a minimum, total financial resources sufficient to

cover the default of the one participant and its affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions.

Summary Narrative

Key consideration 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.

Measures taken to manage credit risks from securities firms

TPEx faces credit exposure posed by securities firms. To manage the credit risk, TPEx has taken several measures as follows.

1.Require securities firms to contribute to the Clearing Fund

Every securities firm which settles with TPEx has to contribute to the Clearing Fund. The calculating method of the Clearing Fund includes fixed part and variable part.

- **Fixed Part:**
  Each brokerage firm shall contribute NT$1.5mn, with an extra NT$0.25mn for each additional branch. Each securities dealer shall contribute NT$2mn to the Clearing Fund.
- **Variable Part:**
  This is the balance after the fixed part is subtracted from NT$1.6bn. The balance then is distributed among all the securities firms pro rata on the basis of the size of their net-long or net-short amount of the previous year.

To ensure that the contribution deposited by each securities firm is sufficient to cover its risk, TPEx has designed a "Monthly Tracking Mechanism", which requires that the contribution of each securities firm shall not fall under 80% of its average daily VaR of the previous month. With this mechanism, the risks arising from the securities firms' unsettled position have been covered. Therefore TPEx decides not to require margins for the unsettled positions.

2.Conduct regular risk management measures on securities firms

■ **Risks from operations**

TPEx exerts strict financial requirements and conducts general audits on securities firms. TPEx's Intermediaries Service Department is responsible for managing securities firms' credit exposures and requires all the securities firms to maintain good financials. Whenever the examined securities firms' financials deteriorate to a certain extent that meet the conditions listed in Article 7 of Taipei Exchange Operational Rules for Follow-up, Assessment, and Guidance in Regard to Securities Firm Audit Deficiencies , TPEx will send employees to conduct a special audit report. TPEx requires securities firms to maintain a certain asset-to-debt ratio and capital adequacy ratio. If a securities firm's net worth is less than its paid-in capital, its trading multiples can be lowered by TPEx (Article 35 of Taipei Exchange Rules Governing Securities Trading on the TPEx).

Other than the general audits, TPEx also implements an early warning system, which is based on general risk and special risk indicators, to keep track of the business and financial risk of securities firms. TPEx implements special audits on the securities firms selected through the early warning system and may reduce their trading multiples as a further step. For any securities firm who violates securities regulations, it is reported to TPEx's Enforcement Action Review Conference and further sanctions on the staff might be exerted. These measures are effective in controlling securities firms' credit risks.

■ **Risks from unsettled positions**

Further, TPEx produces the VaR value of securities companies everyday, which is based on the net-long and net-short trading position of individual securities firm on T day and T-1 day. The VaR value is the foundation for the monthly review of the amount to be contributed to the Clearing Fund by the individual securities firm.

■ **Risks from clients**

➢ **Control the settlement risks and default risks caused by clients**

TPEx monitors the size of individual investors' default daily. If any investors' default amount reaches certain levels, TPEx will report it to TPEx's management, Taiwan Stock Exchange, Taiwan's Future Exchange, Taiwan Depository Clearing Corporation and Securities and Futures Bureau of the Financial Supervisory Commission.

- **Hold a cross-departmental daily meeting to prevent default**

A cross-departmental "prevention of large default meeting" is held in the afternoon of every trading day. It aims to find individual investors who have net-long positions exceeding a certain amount. TPEx checks whether the trading quota of those investors, permitted by the securities firms, can cover the net-long position or not. If the result is not acceptable, TPEx will penalize the securities firms and all relevant persons accordingly, or file a report to the regulatory body.

- **Label stocks under disposition measures to caution investors**

To alert investors about stocks with over-volatile or irregular trading status, TPEx publicly lists the names of these stocks as "Stock Under Disposition Measures", on which pre-delivery of funds or securities would be imposed before any trading order can occur.

3.Enhance TPEx's ability to face credit risk exposures

In the daily settlement, during the process of receiving funds and securities payment, TPEx adopts a "funds receipt prior to payment" principle, which means that securities firms shall fulfill their settlement obligations prior to TPEx's payment. Under normal daily settlement, TPEx never uses its own funds for advancing any payment to securities firms. "Funds receipt prior to payment" has buffered TPEx from risks caused by the securities firms.

Moreover, TPEx set up a Clearing Fund (NT$2 billion) sufficient to cover the credit risk caused by the default of securities firms. The deposit requirements of the Clearing Fund are clearly stipulated in the regulations. The significant financial resources of NT$ 2bn outnumbers the average daily VaR value of all the securities firms combined which is around NT$0.63bn to NT$1.06bn. Therefore TPEx has not conducted any stress tests to estimate credit risks caused by the securities firms.

Review of the framework for managing credit exposures

With the above three dimensions, TPEx's risk management framework is solid. The frequent examinations are non-periodic, since the framework has been revised and enhanced gradually, and operating smoothly with the maturity of the market.

The framework has been reviewed and enriched in parallel with the progress of the market regularly, and has become sound and mature, working effectively.

Key consideration 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.

TPEx has identified its credit exposures as coming from default by securities firms or the clients of securities firms.

Measures of identifying and monitoring credit risks from securities firms

TPEx identifies sources of credit risk by evaluating its counterparties. Several measures are taken as follows.

- **Review securities firms' financial reports**
  TPEx reviews the indicators of financial reports submitted by securities firms monthly and reports to the regulatory body if any securities firm is judged to be in serious condition or in financial deficit.

- **Produce securities firms' VaR value**
  TPEx produces securities firms' VaR value daily which is based on the net-long and net-short trading position of individual securities firm on T day and T-1 day. The VaR value is the foundation for the monthly review of the amount to be contributed to the Clearing Fund by the individual securities firm.

- **Hold a cross-departmental daily meeting**
  A cross-departmental "prevention of large default meeting" is held in the afternoon of every trading day. It aims to find individual investors who have net-long positions exceeding a certain amount. TPEx checks whether the trading quota of those investors, permitted by the securities

firms, can cover the net-long position or not. If the result is not acceptable, TPEx will penalize the securities firms and all relevant persons accordingly, or file a report to the regulatory body （Article 3 of Taipei Exchange Operational Rules for Follow-up, Assessment, and Guidance in Regard to Securities Firm Audit Deficiencies）

- **Label stocks under disposition measures to caution investors**
  To alert investors not to buy stocks with over-volatile or irregular trading status, TPEx publicly lists the names of these stocks as "stock under disposition measures", on which pre-delivery of funds or securities would be imposed before any trading order can occur.（Article 2-6 of Taipei Exchange Operation Directions for Announcement or Notice of Attention to Trading Information and Dispositions ）

TPEx has implemented the aforementioned measures and no defaults have occurred since then.

Key consideration 3: A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a 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.

Coverage of exposures to each participant

TPEx plays the role of Central Counterparty (CCP) providing clearing services and settlement guarantee, and acts as Securities Settlement System (SSS) ensuring transfer and delivery of funds and securities in settlement. If securities firms borrow securities to fulfill the settlement obligations, they have to deposit collateral with TPEx for the securities borrowed; TPEx stipulates clear rules for acceptable collateral, collateral haircuts and calculates collateral value by mark-to-market. TPEx does not extend intraday credit to securities firms. When it comes to the financial resources, TPEx has Clearing Funds at its disposal in the case of default or loss of financial resources as the case may be caused by market participants (Article 1 of Contract for Trading of Securities on the TPEx by a Securities Firm). The scale and size of these funds and relevant legal provisions that apply are as follows.

■ **Clearing Fund**

In the event that any securities firm is unable to carry out settlement obligations, another securities firm appointed by TPEx shall bear responsibility of completing settlement. TPEx will first use the Clearing Fund to cover the loss caused by the defaulted securities firms and thereafter seek compensation from the defaulted securities firm.

The priority usage of the Clearing Fund is the amount contributed by the defaulted securities firm, the First Special Clearing Fund (NT$ 300 mn) contributed by TPEx,　then the Clearing Fund contributed by the other non-defaulted securities firms and the Second Special Clearing Fund(NT$ 100 mn) used pro-rata as a pool（Article 1 of Contract for Trading of Securities on the TPEx by a Securities Firm, and Article 13 of Taipei Exchange Rules for Administration of the Joint Responsibility System Clearing and Settlement Fund）.

■ **Additional deposit to the Clearing Fund**

If any conditions listed in Article 2 or 9 of Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund, by which securities firms are influenced by the court order execution or default or the whole market condition is extreme, securities firms have to make additional deposits to TPEx after the resolution by the Special Management Committee of the Clearing Fund.

In addition, a securities firm has to make a supplemental contribution to the Clearing Fund if its contribution to the Clearing Fund is lower than 80% of its average daily VaR value of the previous month. On the other hand, a securities firm may get a refund from the Clearing Fund if its contribution to the Clearing Fund is higher than 80% of its average daily VaR of the previous month or the required amount, of which the refunding amount is the difference.

For DNS payment systems and DNS SSSs in which there is no

settlement guarantee

Inapplicable

Key consideration 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.

Coverage of current and potential future exposures to each participant

TPEx has its disposal the Clearing Fund (NT$ 1.6bn from securities firms and NT$0.4bn from TPEx). Since the daily average VaR of all securities firms floats between NT$0.63bn and NT$1.06bn, the financial resources at TPEx's disposal are deemed sufficient to cover current and future risk exposures. TPEx does regular reviews to examine whether the above resources are sufficient.

Risk profile and systemic importance in multiple jurisdictions

TPEx does not run clearing and settlement services for high-risk financial instruments; neither does TPEx run any cross-border clearing and settlement services.

Additional financial resources

TPEx may, upon a resolution by the Special Management Committee of the Clearing Fund (the "Committee"), require a securities firm to make an additional deposit to the Fund if necessary(Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund).

TPEx also signed a contract of NT$0.1bn with a bank to obtain lines of credit. With this contract, TPEx may get credit lines from this bank when the Clearing Fund is not sufficient.

Supporting rationale and governance arrangements

The rationale behind the Clearing Fund is that the securities firms and TPEx have to cooperate to build a market with the least risk if possible. The responsibility of preventing risk shall be undertaken not only by TPEx, but also by the securities firms. Therefore each securities firm is required to make contributions to the Clearing Fund. TPEx, as the operator of the stock market, shall bear more responsibility than the securities firms and have a more important role (Article 87-1 of Taipei Exchange Rules Governing Securities Trading on the TPEx) .Therefore, the First Special Clearing Fund of TPEx (NT$300mn.) ranks second in the priority usage. The arrangement of ranking third in the priority usage stresses the co-responsibility of TPEx and securities companies in the prevention of possible securities firms' default.

Key consideration 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.

Stress Testing

TPEx does not conduct any plans for stress tests to estimate credit and liquidity risks. The reason is because TPEx only provides clearing and settlement in the cash market, not in the derivative market. Moreover, the stock trading has a fluctuation price limit range of 10% (+10% or-10%), setting a limit to the movement of stock prices, which limits the risks.

Another reason for not having stress tests is TPEx has significant financial resources of NT2 bn. It is larger than the average daily VaR value of all the securities companies which is around between NT$0.63bn and NT$1.06bn.

Review and validation

TPEx produces VaR value for each securities firm every day, and compares the VaR value with the Clearing Fund contribution of each securities firm so as to see whether the contributed portion is sufficient to cover the VaR value.

For evaluating the effectiveness of the model calculating VaR value, TPEx has conducted back-tests to test the validity of VaR value model.

Key consideration 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.

Inapplicable

Key consideration 7: An FMI should establish explicit rules and procedures that address fully any credit losses 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 funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.

Allocation of credit losses

TPEx has set a priority usage for the Clearing Fund in handling the default of securities firms (please see the former information). If the loss exceeds the Clearing Fund, the mechanism of an additional contribution by the securities firms will be initiated under the decision of the Fund Committee（Article 13 of Taipei Exchange Rules for Administration of the Joint Responsibility System Clearing and Settlement Fund , Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund ）.

Replenishment of financial resources

The Clearing Fund replenishment is as follows.

■ **Supplemental contributions by securities firms' to the Clearing Fund**

If necessary, TPEx may require a securities firm to make a supplemental contribution within a prescribed time limit if its contributed funds are utilized for any reason. If the firm fails to make the deposit within the time limit, TPEx will thereupon halt its market trading (Article 14 of Taipei Exchange Rules for Administration of the Joint Responsibility System Clearing and Settlement Fund).

■ **Additional contributions**

Refer to Key Consideration 3 Additional Deposit to the Clearing Fund.

■ **Compensation of TPEx's Clearing Fund**

TPEx will replenish the Second Special Clearing Fund (NT$ 100mn) if depleted.

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.

Summary Narrative

Key consideration 1: An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

Acceptable Collateral

TPEx accepts the following as collateral in the settlement-driven Securities Borrowing System (Article 7-1 of Taipei Exchange Securities Borrowing and Lending Rules):

- bank guarantees;
- government bonds in the form of book-entry;
- cash

Key consideration 2: An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

Valuation practices

TPEx recalculates the collateral values by marked-to-market every day, using the closing price of the securities in the previous trading day.

Haircutting practices

The haircut of government bonds in the form of book-entry is valued at 90% percent of the face value. The haircut rate is not examined regularly （Article 7-3 of Taipei Exchange Securities Borrowing and Lending Rules）.

Key consideration 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 practicable and prudent.

Inapplicable

Key consideration 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. Inapplicable
Key consideration 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. Inapplicable
Key consideration 6: An FMI should use a collateral management system that is well-designed and operationally flexible. **<u>Collateral management system design</u>** TPEx receives collateral in the form of cash from securities firms which are unable to complete their securities settlement obligations on T+2 day at 10:00 am. Those securities firms would enter into TPEx's settlement-driven Securities Borrowing System to borrow securities for completing the daily settlement obligations. TPEx charges collateral at the price of 120% of the borrowed securities' closing price on the first day after the trade date (T+1) and marks to market everyday (Article 3 of Taipei Exchange Securities Borrowing and Lending Rules). **<u>Operational flexibility</u>** As mentioned above, TPEx's collateral management is based on the settlement-driven Securities Borrowing System. If the borrowers cannot return the securities the next day, TPEx's Borrowing System will initiate automatic borrowing for the borrower and the value of collateral payables will be calculated daily (Article 6 of Taipei Exchange Securities Borrowing and Lending Rules）.

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.
Summary Narrative **Key consideration 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.**

Description of margin methodology TPEx only provides settlement service in the cash market. As TPEx sets a fluctuation price limit range of 10% (+10% or -10%) to the trading of listed stocks, and the method used to manage the credit risk and liquidity risk of securities companies works well, therefore the margin system is not implemented. **Credit exposures** Inapplicable **Operational components** Inapplicable
Key consideration 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. **Sources of price data** Inapplicable **Estimation of prices.** Inapplicable
Key consideration 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 subportfolio 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 practicable and prudent, limit the need for destabilizing, procyclical changes. **<u>Initial margin model</u>** Inapplicable **<u>Closeout and sample periods</u>** Inapplicable **<u>Procyclicality and specific wrong-way risk</u>** Inapplicable
Key consideration 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. Inapplicable
Key consideration 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 authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk management systems. **<u>Portfolio margining</u>** Inapplicable **<u>Cross-margining</u>** Inapplicable **<u>Robustness of methodologies</u>** Inapplicable
Key consideration 6: A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting – and 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. **<u>Backtesting and sensitivity analysis</u>** **Backtests are only done to test the validity of the VaR value model.** **<u>Margin model performance</u>** Inapplicable
Key consideration 7: A CCP should regularly review and validate its margin system Inapplicable

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.
Summary Narrative **Key consideration 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.** TPEx's liquidity risks arise from the capital shortage in defaults caused by securities firms. In order to maintain sufficient liquid resources to effect settlement, every measure taken in preventing credit risks is also applicable in preventing liquidity risks (Principle 4 Key Consideration 1). Other than those measures, the use of the Central Bank's Interbank Funds Transfer System is crucial in confining liquidity risk.

TPEx has used daily fund transfer system (called Fund and Securities Transfer Platform) upon the CBC Interbank Funds transfer System(CIFS).TPEx has used the Fund and Securities Transfer System to monitor the settlement and fund receipt from securities firms, as well as sending instructions to CIFS for fund payment. The reliance on the Central Bank, instead of commercial banks, as the payment system is very practical to enhance TPEx’s management of liquidity risk.

To ensure that all the financial resources contributed both by the securities firms and TPEx are readily available and convertible into cash, TPEx maintains the financial resources in a safe and easy-to-cash way, such as time deposits, short-term notes, and bonds. In addition, TPEx has signed a secured line of credit of NT$0.1bn with a bank.

TPEx only uses NT dollars for clearing and settlement currently. Liquidity risks in other currencies do not occur.

Key consideration 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.

TPEx uses the Fund and Securities Transfer Platform link with the CIFS system of the Central Bank. Through the platform, TPEx is able to obtain immediate information of fund arrival from net-long securities firms. After confirming the fund receipt, TPEx notifies the Central Bank to transfer funds to the net-sell securities firms on the settlement day. This platform provides TPEx an effective operational tool to monitor the settlement and funding flows on an ongoing and timely basis.

Key consideration 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.

TPEx only uses NT dollars for clearing and settlement. Liquidity risks in other currencies do not occur.

Key consideration 4: A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time 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 to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.

Sufficient liquid resources

TPEx does not provide liquid resources in any relevant currencies for settlement purposes. TPEx does not design any stress test nor require margins for risk management as stated in Key Consideration 5 of Principle 4.

Risk profile and systemic importance in multiple jurisdictions

TPEx's clearing service only covers securities traded within TPEx market, and does not involve multiple jurisdictions. No complicated risk scenario is involved. Therefore TPEx does not face the need to measure liquidity risks arising from defaults by market participants in multiple jurisdictions.

Key consideration 5: For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include 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.

<u>Size and composition of qualifying liquid resources</u>

The qualifying liquid resources can be divided into two parts.

- Clearing Funds at the size of NT$ 2bn.
- Secured lines of credit at the size of NT$0.1bn with a bank.

<u>Availability and coverage of qualifying liquid resources</u>

The Clearing Fund is kept by TPEx and is ready for use whenever there is a need.

Key consideration 6: An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then 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.

<u>Size and composition of supplemental liquid resources</u>

TPEx has signed a contract for secured lines of credit valued at NT$0.1bn with a bank. This contract can be deemed as supplemental financial resources.

<u>Availability of supplemental liquid resources</u>

TPEx shall provide collateral for using the abovementioned supplemental liquid resources. The following financial resources can be used as collateral.

■ **TPEx's self-owned funds as collateral**

TPEx allocates its own funds (time deposits, or bonds) of as the pledge to obtain credit lines from the bank. The amount of NT$100mn can also be deemed as a supplementary liquid resources for TPEx.

The supplementary liquid resources are secured lines of credit signed with a bank. This Bank shall provide these resources whenever there is a need. This contract is renewed annually.

Key consideration 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.

Use of liquidity providers

TPEx has arranged with a commercial bank to provide financing for fund settlement in case a securities firm defaults. The arrangement has been signed in the form of written contracts and can be legally engaged as needed.

Reliability of liquidity providers

The financing arrangement has been signed in the form of written contracts and can be highly trusted.

Key consideration 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.

Even TPEx uses the Electronic Interbank Funds Transfer and Settlement System (CIFS) of the Central Bank to process settlement of funds, yet

TPEx has not arranged to get financing from the Central Bank, instead, it is arranged via core commercial banks. The liquidity problems of securities incurred from the shortage of securities in the settlement day on the part of securities firms are resolved through the settlement-driven Securities Borrowing System which is supervised by TPEx and operated by TDCC.

Key consideration 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, include 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.

Stress test program

TPEx does not have any plans to conduct stress tests to estimate credit and liquidity risks. The reason is because TPEx only provides clearing and settlement in the cash market, not in the derivative market. Moreover, the stock trading has a fluctuation price limit range of 10% (+10% or,-10%), setting a limit to the movement of stock prices.

Another reason for not having stress tests is TPEx has significant financial resources of NT$2 bn. It far outnumbers the average daily VaR value of all the securities companies combined which is between NT$0.63bn to NT$1.06bn.

Stress test scenarios

Inapplicable

Review and validation

Inapplicable

Key consideration 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.

Same day settlement

TPEx has stipulated a procedure to settle its payment obligation on time during a default (Taipei Exchange Procedures for Handling Default on Settlement Obligations by Securities Firms). TPEx, the defaulter and the appointed securities firms shall follow the above-mentioned procedures to complete the relevant procedures of closing the defaulters' business, including delivery and deposit, withdrawal, stock transfers, and fund transfers on the same day. The appointed securities firms are obliged to assist the defaulters' clients in transferring their settlement funds to their accounts in settlement banks to complete the settlement process. The procedures have listed all relevant details for defaulters and appointed securities firms.

Replenishment of liquidity resources

Methods of replenishing the Clearing Fund is as follows.

- **Clearing Fund**

If any portion of the Clearing Fund which was deposited by a securities firm is used, but the firm fails to make a supplemental deposit as required, TPEx shall notify the firm to make the supplemental deposit within a prescribed time limit. This notification can be deemed as the replenishment of the Clearing Fund. Other than that, to ensure that the securities firm's deposited Clearing Fund contribution is sufficient, with the approval of TPEx's Clearing Fund Committee, TPEx may also require the firm to make additional deposits if the firm meets any of the special circumstances listed in Article 2 of Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund . These circumstances are mostly related to deterioration of the firm's financial and audit conditions.

As for the Clearing Fund deposited by TPEx, the Second Special Clearing Fund (NT$100mn) will be replenished by TPEx.

Principle 8: Settlement finality

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

Summary Narrative

Key consideration 1: An FMI's rules and procedures should clearly define the point at which settlement is final.

Points of settlement finality

The settlement timeframe is clearly stipulated in Taipei Exchange Directions Governing Clearing and Settlement Operations for Securities. The settlement time of securities and funds for investors, and securities for securities firms is 10:00 am T+2, and the settlement time of funds for securities firms is 11:00 am T+2. The delivery of securities and money is final（Article 6 of Taipei Exchange Directions Governing Clearing and Settlement Operations for Securities Traded on the TPEx）.

Finality in the case of links

When TPEx receives settlement funds from securities firms, it will sends instructions to TDCC to deliver securities to the securities firms which have completed settlement. The instructions sent by TPEx are final and irrevocable.

Key consideration 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.

<u>Final settlement on the value date</u>

The settlement time is 10:00 am on T+2 for securities settlement, and 11:00 am on T+2 for funds. The securities firms and the investors will receive the securities and/or money on T+2 once the settlement obligations are completed（Article 6 of Taipei Exchange Directions Governing Clearing and Settlement Operations for Securities Traded on the TPEx ）.

<u>Intraday or real-time final settlement</u>

The settlement time is 10:00 am on T+2 for securities settlement, and 11:00 am on T+2 for funds. The securities firms and the investors will receive the securities and/or money on T+2 when they complete their settlement obligation.

Key consideration 3: An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

In TPEx's markets, all the settlements are irrevocable.

Principle 9: Money settlements

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

Summary Narrative

Key consideration 1: An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

Fund settlement via Central Bank

TPEx uses the Central Bank money to conduct fund settlement. TPEx has a settlement account in the Central Bank's Interbank Transfer System (CIFS system), and the securities firms have to deposit the settlement funds to that settlement account via the service of their assigned settlement banks. TPEx issues instruction to the CIFS system to transfer

the funds to those securities firms which have funds to be received in the settlement day.
Key consideration 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. Inapplicable
Key consideration 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, capitalisation, 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. Inapplicable. TPEx's fund settlement is processed with the Central Bank money, not the commercial bank money. The reason is similar to Key Consideration 1.
Key consideration 4: If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks. Inapplicable
Key consideration 5: An FMI's legal agreements with any settlement banks 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. TPEx and the settlement banks which provide funds transfer services to the securities firms are all approved participants in the CIFS system of the Central Bank. They have to follow the strict requirement thereof. The transfer via the CIFS is final and all transfers have to be completed before day-end. Generally, settlement of funds shall be completed before 11:00

am of the settlement day.

Principle 10: Physical deliveries
An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.
Summary Narrative **Key consideration 1: An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.** The listed securities are all dematerialised, and the securities settlement is through book-entry operated by TDCC (the securities central depository).
Key consideration 2: An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities. Inapplicable

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 immobilised or dematerialised form for their transfer by book entry.
Inapplicable to CCP or SSS.

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.

Summary Narrative

Key consideration 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.

TPEx has not built up any exchange-of-value securities systems.

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.

Summary Narrative

Key consideration 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 that address the replenishment of resources following a default.

Participant default rules and procedures

If a securities firm fails to deliver a price payable by the end of banking hours, it is in default of its clearing and settlement obligation. (Article 87-1(4) of Taipei Exchange Rules Governing Securities Trading on the TPEx)

The crisis-handling procedure of default

If any securities firm announces a default or any material event which might lead to default, TPEx will follow internal procedures of handling securities firms' insolvency and establish an interim committee to deal with the default. This committee, chaired by TPEx's Managing Director & CEO, is comprised of all TPEx department heads. Any final decisions made by the committee will be reported to the regulatory body. TPEx will also examine the financial situation of the defaulting securities firms and help it transfer the unsettled positions to the designated securities firms and relevant clients' accounts to complete the settlement procedure.

The matters to be undertaken by the defaulter and the designated securities firms are stipulated in TPEx's "Procedures for Handling Default on Settlement Obligations by Securities Firms". All the securities firms shall follow the procedures when making announcements, and transferring unsettled securities to the designated securities firms, in order to lower the impact on investors. **Use of financial resources** TPEx has set up the Clearing Fund to meet the needs of liquidity and share the loss coming from the handling of a securities companies' default. The Clearing Fund is NT$ 2 billion. The mechanism of an additional contribution by the securities firms will be initiated under the decision of the Clearing Fund Committee. The above information has been posted on TPEx's website and is explained in the educational seminars for securities firms regularly (Article 9 of Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund).
Key consideration 2: An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules. TPEx has stipulated a procedure to handle the default of a securities firm (Procedures for Handling Default on Settlement Obligations by Securities Firms). This procedure has been reviewed when necessary.
Key consideration 3: An FMI should publicly disclose key aspects of its default rules and procedures. The procedures and requirements concerning the handling of default of securities firms are stipulated in "Procedures for Handling Default on Settlement Obligations by Securities Firms" and are available on the http://www.selaw.com.tw/ for public reference.
Key consideration 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.

The procedures and requirements concerning the handling of the default of securities firms are the result of lessons learned from past defaults of securities firms. The reviews of the aforementioned requirements and procedures are engaged if necessary in the cases such as the change of relevant material requirements.

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.

Summary Narrative

Key consideration 1: A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' 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.

Customer protection from participant default

■ **Segregated accounts for fund and securities settlement**

When an investor starts trading listed securities, he/she has to open his/her own bank account in the bank designated by the securities firm. This account is for paying and receiving of settlement money between securities firms and investors. Further, he/she has to open a TDCC depository account in his/her legal name with proper ID under the name of the securities firm. Any securities movement of investors' depository account in one securities firm can only go to the depository accounts with the same identity in other securities firms. The money and securities owned by the investors can be protected under these arrangements whenever securities firms happen to default.

Regarding clients' settlement fund, securities firms shall open settlement accounts in banks for payment and receipt of the settlement funds to and from the clients. This account cannot be used for other purposes and enjoys special protection under the Securities Investor and Futures Trader Protection Act. **Customer protection from participant and fellow customer default** For the protection of customers' positions and related collateral, please refer to the preceding paragraph. The TPEx doesn't additionally offer protections. **Legal basis** According to Article 37 of the Securities Investor and Futures Trader Protection Act, a securities firm shall keep separate and independent from its own assets the dedicated accounts it opens in accordance with acts and regulations for the deposit of customer money and the assets it receives as a result of accepting customer orders. The aforementioned rule has provided a solid legal foundation for TPEx to protect clients' position and collateral.
Key consideration 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. The account arrangements on the part of investors in money and securities mentioned can enable the identification of securities firms' positions readily.
Key consideration 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. Under the above arrangements, the money and securities in the bank and TDCC accounts are fully protected and can be transferred when new accounts are opened with designated securities firm because the original securities firm defaulted. The portability of the accounts can be highly ensured.
Key consideration 4: A CCP should disclose its rules, policies, and

procedures relating to the segregation and portability of a participant's customers' 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 constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.

The aforementioned arrangements have been disclosed in the rules as follows:

Segregation:
Article 37 of Securities Investor and Futures Trader Protection Act
Articles 6-10 of Regulations Governing Book-Entry Operations for Centrally Deposited Securities

Portability:
Article 62 of Securities and Exchange Act
Regulations Governing Securities Trading on the Taipei Exchange
Article 87-1 of Taipei Exchange Rules Governing Securities Trading on the TPEx
Article 2 of Taipei Exchange Procedures for Handling Default on Settlement Obligations by Securities Firms
Article 1 of Contract for Trading of Securities on TPEx by a Securities Firm

To date, TPEx does not have any constraints (legal or operational) that may impair TPEx's ability to fully segregate or move/transfer a participant's customers' positions and 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 materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Summary Narrative

Key consideration 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.

TPEx adopts the following two management and control systems to identify, monitor, and manage general business risks.

- TPEx has established an Internal Audit Office, which directly reports to the Board. This Office conducts monthly operational audits for every department to control the operational risks of the TPEx.
- TPEx has established a Business Continuity Plan (BCP) to maintain the key activities and start recovery procedures, so that the normal operation can be continued before the expected deadlines.

Key consideration 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 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.

TPEx is a non-profit organization. Hence TPEx maintains a fund which represents its equity. Up to the end of Dec2020, the size of the fund is about NT$6.13 billion, which should suffice to enable TPEx to continue operations and services in the event that general business losses are incurred.

Key consideration 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.

Recover or Orderly Wind-down Plan

TPEx is both a stock exchange and a clearing institution. Both functions are approved by the regulatory body. TPEx's main task is to develop and to maintain the trading order of the securities market. Since TPEx is the major licensed CCP in the securities market, and TPEx's establishment and wind-down is closely supervised by the regulatory body, the necessity of establishing recovery and orderly wind-down plans is low.

Resources

TPEx holds a fund in the amount of NT$6.13 billion, including readily liquefiableassets such as bank deposits and time deposits amounting to approximately NT$5.32 billion which make up 87% of the fund. TPEx's current operating expenses amount to NT$150 million per month. Thus TPEx holds liquid net assets that can cover up to 35 months of current operating expenses (far exceeding the 6-month minimum requirement), which should suffice to enable TPEx to continue operations and services in the event that general business losses are incurred.

Key consideration 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 expenses under a range of scenarios, including in adverse market conditions.

TPEx holdsreadily liquefiable assets such as bank deposits and time deposits amounting to approximately NT$5.32 billion, that allows TPEx to cover current and projected operating expenses under a range of scenarios, including adverse market conditions.

Key consideration 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. TPEx is a non-profit organization not corporate entity. The surplus can only be transferred to fund, and cannot be distributed. So TPEx's additional equity mainly comes from the surplus. Compared to the initial fund (NT$0.35 billion), the total fund size is NT$6.13 billion as year of 2020. The annual surplus transferred to fund plans must be approved by the Board and regulatory body.

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 investments should be in instruments with minimal credit, market, and liquidity risks.
Summary Narrative **Key consideration 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.** **Custody policy on TPEx's assets** Assets held by TPEx are kept in the correspondent banks. The aim of TPEx's asset custody is to achieve safety and liquidity, whereas gaining revenue is the second priority. To ensure that TPEx follows the above principle, TPEx's Board has passed the "Utilization of Capital Guidelines", which clearly states the screening standards of TPEx's investment targets, the examination standards of the investment performance, and the internal control procedures of protecting the assets. In addition, TPEx's assets shall be counted by internal auditors and external accountants periodically and on special occasions. **Custody policy on market participants' assets** Regarding the custody of securities firms' assets, the Clearing Fund portions deposited by securities firms shall be maintained in a special

account in TPEx. The Clearing Fund deposited by securities firms is allowed to purchase only bonds, time deposits, short-term notes or other investing methods approved by the regulatory body. Interest will be returned to securities firms after deducting relevant expenses and taxes collected from the Clearing Fund. Since TPEx follows the "Utilization of Capital Guidelines" strictly, and is closely supervised by the Internal Audit Office and the Board, TPEx is capable of protecting its own assets and securities firms' assets.
Key consideration 2: An FMI should have prompt access to its assets and the assets provided by participants, when required. TPEx strictly follows the "Utilization of Capital Guidelines" to safeguard its own and securities firms' assets. To ensure that TPEx has prompt access to its assets, TPEx holds the securities firms' assets in the form of bonds, time deposits, short-term notes, or cash. Therefore the assets are accessible anytime.
Key consideration 3: An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each. TPEx deposits it highly liquid assets in high credit rating financial institutions. TPEx does not choose any specific custodian bank, but deposits its assets in more than 10 financial institutions to diversify risks and safeguard its assets.
Key consideration 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. **Investment Strategy** TPEx's investment strategy is consistent with its overall risk management strategy and has been fully disclosed to its participants. For example, TPEx follows the "Utilization of Capital Guidelines", which is approved by the Board in devising investment strategies. In addition, TPEx set up an "Investment Group" to decide investment strategies. All the investment results have to be disclosed in the annual

report for public awareness.

To ensure consistently that TPEx's investment is secured by high-quality institutions, the "Utilization of Capital Guidelines" sets up strict screening standards for investment targets. The above standards can be deemed to ensure that all investments are secured by high-quality institutions.

Risk characteristic of investments

To avoid concentration of credit risk exposures, TPEx follows the "Utilization of Capital Guidelines" to make investment strategies, such as setting maximum limits for single investment and single trading counterparty. TPEx has kept no investments of market participants.

In order to ensure that investments allow for quick liquidation, TPEx mostly invests in fixed-income assets such as time deposits, bonds, and short-term notes. All the investments made by TPEx are easy to liquidate in the market at fair prices.

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 fulfillment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Summary Narrative

Key consideration 1: An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

Identification of operational risk

■ **Risk Management Policy and Crisis Management Guidelines**

TPEx has established three systems to identify operational risks at different frequencies.

- Internal Control System: As stated in Principle 3, TPEx’s risk management policies are implemented along with TPEx’s internal control system. TPEx’s management may identify the operational risks by frequent internal audits conducted by the Internal Audit Office. If any department discovers flaws related to operational risks in the internal control procedures, the department may submit modifications of the internal control procedures to the Internal Audit Office, which reports the modifications to the Board semi-annually. TPEx’s operational risks can by identified by this channel.
- Business Continuity Plan: To identify operational risks under extreme conditions, TPEx has stipulated “Business Continuity Plan”. The BCP rehearsal has to be held at least once a year, and the operational risks can be identified via this channel as well.
- Emergency and Crisis Handling System: TPEx has stipulated “TPEx Handbook of Handling Emergency and Crisis (HHEC)” to identify and handle the operational risks in emergent conditions and crisis. Following the Handbook, TPEx management is able to identify, measure, supervise, prevent, and control operational risk in emergent occasions. The Handbook is modified by the Strategy & International Business Department once a year.

Management of operational risk

TPEx has monitored and managed the operational risks by adhering to “TPEx’s Business Continuity Plan” and “TPEx’s Handbook of Handling Emergency and Crisis”, which were approved by TPEx’s Managing Director & CEO. All the risk management systems, policies, procedures and controls are stated in the above documents.

Policies, processes and controls

- **Internal Audit Policy**

To ensure that the operational procedures are implemented appropriately, TPEx has set up an Internal Audit Office to conduct monthly internal audits for every department. TPEx’s internal auditors follow “Regulations Governing the Establishment of Internal Control Systems by Service Enterprises in Securities and Futures Markets”, issued by FSC.

■ **Human Resource Policy**

TPEx's Administration Department has enacted various policies for hiring and training employees. To prevent employees from divulging confidential information outside of the organization, TPEx reserves the right to have different levels of administrative discipline based on the Human Resource Management Regulations. In addition, TPEx's employees are not allowed to reap improper benefits from listed companies, IPO applicants, securities firms, and information companies by abusing the power of any position. Employees who violate the rules may get fired. Those who have retired or left TPEx, are not allowed access to TPEx's Internal Information System.

Key consideration 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.

Role, responsibilities and framework

TPEx's Board has authorized the Managing Director & CEO to approve BCP and HHEC procedures, therefore the Board does not take the responsibility of evaluating the operational risks. However, TPEx's Board receives reports from TPEx's Internal Audit Office, the unit that supervises and evaluates operational risk management, every quarter. The Board members may also give the management suggestions to improve the risk management framework.

Review, audit and testing

TPEx's Internal Auditing Office takes the role of reviewing, auditing and testing BCP. If there are any modifications to the internal control system, the internal auditor will report it to the Board semi-annually. The BCP review is sent to the Board, the independent supervisor, and the regulatory body once a year, therefore this reporting is subject to external audit.

Key consideration 3: An FMI should have clearly defined operational reliability objectives and should have policies in place

that are designed to achieve those objectives. The key TPEx objective is to operate a safe and efficient clearing facility for the securities market. To ensure a high degree of operational reliability in settlement, TPEx requires the Information Department to maintain the stability of the computer system, reducing the risk of not being able to produce settlement reports in time. The Business Continuity Plan and Internal Audit System are also parts of the mechanism to maintain operational reliability. To ensure that TPEx takes appropriate action to achieve operational reliability, staff members who are responsible for clearing and settlement are obliged to follow the Internal Operational Manuals to implement every step on the daily receipt and payment of funds and securities, and all the other risk management procedures.
Key consideration 4: An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives. To ensure safety in the market trading, TPEx routinely analyzes the system's current capacity according to the abnormal operation's quarterly reports in order to estimate the potential capacity in the future. The capacity plans are renewed every year, so as to ensure that the plans suit the current demand.
Key consideration 5: An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats. **<u>Physical Security</u>** TPEx has implemented international standards such as ISO 9001 (quality), ISO 27001 (security), ISO 20000 (information service), and ISO22301(business continuity management). All computer security follows the above international standards, including relevant identification, supervision and measurement. TPEx has established related procedures such as "Host Engine Management Procedures", "Network Equipment Management Operation Procedures" and "Network Information Security Management Procedures" and other related procedures based on the above international standards for executive regulations. **<u>Information Security</u>** In order to reduce information security weaknesses and threats, and enhance the overall information security protection capabilities, TPEx

has passed the certification of international standards for information security including ISO 27001, ISO 9001, ISO 20000 and ISO 22301. To ensure information security validity, these international standards are certificated by British Standards Institution (BSI) to conduct every six months reviews.
Key consideration 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. **Objectives of Business Continuity Plan (BCP)** The BCP objectives are to maintain the continuous operation of key activities in the market, and to start the recovery procedures, so as to recover normal operations within two hours. **Design of Business Continuity Plan** TPEx establish Business Continuity Plan (BCP) to maintain the continuing operations of trading and a fast system recovery, TPEx has established two back-up systems. Therefore TPEx is able to resume operations within two hours following disruptive events. **Disruption of Settlement Operations** Whenever interruption happens, TPEx's crisis management procedures require TPEx to report to the regulatory body and other stakeholders. TPEx's committee for running BCP will select key activities to report to the regulatory body about the crisis management. TPEx will also make announcements to the media to disclose risk management progress to the public. **Disruption of critical IT system** TPEx established a Business Continuity Plan for the IT system. To

ensure that the IT system can resume operations within two hours following disruptive events, TPEx has designed the following back-up mechanism.

1. Primary site: Our trading platform uses a non-stop and fault-tolerant system. When an anomaly is detected in the primary process, the backup process will take over on a real-time basis.
2. First backup site: The first backup site uses the hot standby mode for the host, network, application system and database, and it can be activated in 40 minutes.
3. Second backup site: A delay-synchronizing mode for the application system and database is used by the second backup site, and it can be activated the next business day.

The above three sites will back-up TPEx's IT operation whenever TPEx faces system disruption under any occasions.

Secondary Site

TPEx has established two secondary sites for the back-up. One is located in the Banqiao District in New Taipei City, and the other is located in Taichung, around 200 kilometers away from the main site. These two sites are equipped with sufficient resources, so that they are able to back up the operations in critical times. The choice of the secondary site has taken geographic safety distance into consideration.

Review and testing

TPEx's BCP is reviewed and tested at least once a year. For the BCP test of TPEx's major business departments, TPEx's top management, independent supervisors, and representatives from the regulatory body will participate in the drill test. For the BCP test of TPEx's information departments, TPEx will invite securities firms, information vendors, TDCC and Chunghwa Telecom to join or observe the test together.

Key consideration 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 to the FMI's own operations

TPEx has identified risks arising from securities firms, other FMIs and service and utility providers separately. TPEx has adopted different means to monitor and manage these risks as follows.

- **Risks from securities firms**

TPEx conducts routine and special audits on securities firms by the staff in the Intermediaries Service Department, so as to adjust the trading multiples for problematic securities firms, therefore the risks from securities firms could be minimized.

- **Risks from other FMIs**

Regarding risks arising from other FMIs, TPEx entrusts TDCC for securities settlement. Since TDCC is intensely supervised by the regulatory body.

- **Risks from service and utility providers**

To avoid the service and utility providers' operational mistakes from affecting daily settlement, TPEx has established clear guidelines for service providers. Service providers have to follow their signed contracts with TPEx for routine maintenance.

Risks posed to other FMIs

TPEx entrusts the daily securities settlement function to TDCC and the risks exposed to TDCC have been clearly identified.

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.

Summary Narrative

Key consideration 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.

Participation criteria and requirements

TPEx's market participants are securities firms who have signed "Contract for Trading of Securities on the TPEx by a Securities Firm" (called "trading contract" below) with TPEx. There are different

minimum paid-in capital requirements for securities underwriters, securities brokers or securities dealers, which are clearly stated in “Standards Governing the Establishment of Securities Firms“. Any securities firms meeting the requirements may sign the trading contract with TPEx; after which the securities firms are eligible to run trading and clearing business in the equity market. **<u>Access to trade repositories</u>** Inapplicable. Please refer to Taipei Exchange Principles for Financial Market Infrastructure Information Disclosure Report (TR) http://www.tpex.org.tw/web/link/index.php?l=en-us&t=5&t2=44&s=3
Key consideration 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 endeavour to set requirements that have the least-restrictive impact on access that circumstances permit. **<u>Justification and rationale of participation criteria</u>** The participation criteria, relevant rules, and requirements have taken safety, efficiency and risk into operation. As TPEx has been operating for more than 20 years, the systems thereof have been soundly developed, and they are still reviewed to meet the possible new needs of the market participants (securities firms). **<u>Least restrictive access</u>** Inapplicable. The reason is as above. **<u>Disclosure of criteria</u>** The “Standards Governing the Establishment of Securities Firms” and “Contract for Trading of Securities on the TPEx by a Securities Firm” are the relevant regulations regarding the market participation (securities firms). Both are available in the http://www.selaw.com.tw/ for public reference.
Key consideration 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.

Monitoring compliance

TPEx supervises securities firms periodically and non-periodically if necessary, and the areas to be examined include the amount of net worth which is lower than paid-in capital and the securities firms' capital adequacy ratio. TPEx will also use examination results to determine the trading multiples of the securities firms. Securities firms report this to TPEx every month (Article 35 of Taipei Exchange Rules Governing Securities Trading on the TPEx).

Suspension and orderly exit

As for the situation that securities firms terminate their trading contracts with TPEx, mostly due to winding-down or revocation of licenses, TPEx has promulgated relevant rules for them to complete an orderly exit.

Principle 19: Tiered participation arrangements

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

Summary Narrative

Key consideration 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.

Tiered participation arrangements

TPEx has not adopted a clearing member system. No tiered participation is available.

Risks to the FMI

Inapplicable

Key consideration 2: An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

Inapplicable.

Key consideration 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.

Inapplicable.

Key consideration 4: An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

Inapplicable

Principle 20: FMI links

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

Summary Narrative

Key consideration 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.

TPEx's link with TDCC

TPEx has an operation link with TDCC. The aim of the link is to entrust TDCC to do the securities settlement. TDCC is highly supervised by the regulatory body and has to follow strict requirements stipulated by the government. The link arrangements between TDCC and TPEx have not generated any impact on the observance of the other principles.

Key consideration 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.

The link between TPEx and TDCC has been well built and is within the jurisdictions of Taiwan. TPEx has not set up any links outside the jurisdiction of Taiwan.

Key consideration 3: Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits. TDCC has set up a sound risk managing system and is highly regulated by the regulatory body. (Please refer to its disclosure in this respect.)
Key consideration 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. Inapplicable
Key consideration 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. Inapplicable.
Key consideration 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. Inapplicable.
Key consideration 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. **<u>Linked CCP default</u>** Inapplicable. TPEx has not entered into any links with other CCPs. **<u>Collective link arrangements(three or more CCPs)</u>** Inapplicable
Key consideration 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.

Exposures and coverage of exposures

Inapplicable

Management of risks

Inapplicable.

Information provided to participants

Inapplicable.

Key consideration 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.

Inapplicable.

Please refer to Taipei Exchange Principles for Financial Market Infrastructure Information Disclosure Report (TR)

http://www.tpex.org.tw/web/link/index.php?l=en-us&t=5&t2=44&s=3

Principle 21: Efficiency and effectiveness

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

Summary Narrative

Key consideration 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.

Approaches of receiving opinions from market participants

Before launching any new clearing arrangements, TPEx has to consult with industry professionals from the Taiwan Securities Association, which reflect the voices from securities firms.

Key consideration 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.

Achieving the goals for CCP TPEx aims to provide a clearing and settlement platform with high efficiency, low risk and low cost. To ensure that it has clearly defined the above goals, several measures have been taken, ■ TPEx holds educational seminars periodically for securities firms throughout the year to receive feedback from them. ■ Securities firms may also express their proposals via other channels easily, such as through representatives in the monthly Clearing Fund Meeting, or through the committee of Taiwan Securities Association to make recommendations to TPEx. To measure and assess that TPEx has achieved efficiency and effectiveness, TPEx examines the annual objectives to assure targets have been reached.
Key consideration 3: An FMI should have established mechanisms for the regular review of its efficiency and effectiveness. To evaluate TPEx's efficiency and effectiveness, TPEx examines annually whether relevant operations correspond to the standards of high efficiency, low costs and low risks. TPEx also holds periodic educational seminars every year to collect suggestions from securities firms.

Principle 22: Communication procedures and standards
An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.
Summary Narrative **Key consideration 1: An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.** Currently, TPEx has not adopted internationally accepted communication procedures and standards. The information transfer format between TPEx and the Central Bank has been provided by the Central Bank. The current communication format between TPEx and the Central Bank already matches the current needs. **<u>Communication procedures</u>**

Currently, TPEx only performs clearing services for instruments traded over TPEx. It is not involved in cross-border clearance and hence doesn't need to adopt international communication procedures in the field of clearing and settlement.

Communication Standards

TPEx has adopted Financial Information Exchange (FIX) communication standards in its trading operation. Currently, TPEx only performs clearing services for instruments traded over TPEx. It is not involved in cross-border clearance and hence doesn't need the adoption of international communication standards in the field of clearing and settlement.

Principle 23: Disclosure of rules, key procedures, and market data

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

Summary Narrative

Key consideration 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.

Rules and procedures

Rules and procedures that relate to clearing and settlement are stipulated in several rules as follows;

- Taipei Exchange Rules Governing Securities Trading on the TPEx
- Taipei Exchange Directions Governing Clearing an Settlement Operations for Securities Traded on the TPEx
- Taipei Exchange Rules for Administration of the Joint Responsibility System Clearing and Settlement Fund
- Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund

These above regulations are disclosed in http://www.selaw.com.tw/. To fully disclose these rules, TPEx

holds educational seminars to market participants regularly, so that clearing rules and procedures are clear and comprehensive to all the market participants. **Disclosure** The above regulations are disclosed on the public website named www.selaw.com.tw. Any modification of the regulations will be announced to the market participants by TPEx, either on the public website or via educational seminars, in order to completely convey the revision to the public.
Key consideration 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. TPEx keeps the market participants informed of their rights and obligations in the process and clearing and settlement which are clearly stipulated in the relevant requirements and have full disclosure.
Key consideration 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. TPEx hosts educational seminars for securities firms' staff frequently. Many explanatory documents are posted on TPEx's website. TPEx also provides contact information for the public.
Key consideration 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. TPEx announces the calculating methods of transaction fees to the public. The business service fee rate is determined by TPEx and Taiwan Securities Association, and is approved by the regulatory body. Any adjustment or variation of the fee rate has to be approved by the regulatory body. Once the rate has been adjusted, TPEx will notify securities firms by public announcement immediately.
Key consideration 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. TPEx completed CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures in April 2021. TPEx plans to renew the disclosure report once every two years for updated information. TPEx discloses quantitative information such as daily, monthly, and yearly trading amount, average trading amount, average price index and others; hundreds of statistics are available on TPEx's website. As for the disclosure interface, TPEx posts website information in Chinese, English and Japanese. Disclosed information includes commodities details, regulations, trading and clearing information, and other important statistics.

Principle 24: Disclosure of market data by trade repositories
A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.
Inapplicable. Please refer to Taipei Exchange Principles for Financial Market Infrastructure Information Disclosure Report (TR) http://www.tpex.org.tw/web/link/index.php?l=en-us&t=5&t2=44&s=3

List of publicly available resources

Legal Rules and Regulations

1. Securities and Exchange Act
2. Regulations Governing Securities Trading on the Taipei Exchange
3. Taipei Exchange Rules Governing Securities Trading on the TPEx
4. Contract for Trading of Securities on the TPEx by a Securities Firm
5. Risk Management Best-Practice Principles for Securities Firms
6. Taipei Exchange Rules for Administration of the Joint Responsibility System Clearing and Settlement Fund
7. Taipei Exchange Securities Borrowing and Lending Rules
8. Taipei Exchange Operation Directions for Announcement or Notice of Attention to Trading Information and Dispositions
9. Regulations Governing the Establishment of Internal Control Systems by Service Enterprises in Securities and Futures Markets
10. Taipei Exchange Rules for Administration of Additional Deposits by Securities Firms to the Joint Responsibility System Clearing and Settlement Fund
11. Regulations Governing Securities Firms
12. Standards Governing the Establishment of Securities Firms