Shanghai Gold Exchange Central Counterparty Clearing services

Principles for Financial Market Infrastructures (PFMI)

Information Disclosure

March 2021

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Shanghai Gold Exchange Central Counterparty Clearing services

PFMI Disclosure Report

Responding institution: Shanghai Gold Exchange

Jurisdiction in which the FMI operates: the People's Republic of China

Authority regulating, supervising or overseeing the FMI: the People's Bank of China

The date of this disclosure: March 2021

I. Executive Summary

Shanghai Gold Exchange (hereinafter referred to as SGE), established by the People's Bank of China (hereinafter referred to as PBC) upon the approval of the State Council, is a national financial market for gold and a central counterparty recognized by the PBC. SGE mainly engages in the following business:

- Providing trading services in relation to spot, deferred, and other derivative products for gold and other precious metals;
- Providing a platform for price matching, price asking, and other modes of trading;
- Providing the venues, facilities, and related services for the trading of listed products, designing and listing products for trading, formulating the *Trading Rules of Shanghai Gold Exchange*, and organizing, supervising, and regulating trading, clearing and settlement, delivery, and other relevant activities;
- Drafting the standards for delivery and providing account, custody, delivery, clearing and settlement, storage and transport, pledge and lease registration, and other relevant services;
- Supervising and regulating members in accordance with the *Articles of Association of Shanghai Gold Exchange* (hereinafter referred to as *Articles of Association*) and the *Trading Rules of Shanghai Gold Exchange*;
- Performing other duties as prescribed by the PBC.

All of the business activities of SGE are supervised by the PBC. Currently, SGE conducts CCP clearing services under Chinese laws, and these activities have a sound, clear, transparent and enforceable legal basis. SGE has formulated a complete system of market rules in accordance with applicable laws and the normative documents of the PBC. These rules include the *Trading Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Risk Control of*

Shanghai Gold Exchange, the *Measures for the Administration of Membership of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Detailed Delivery Rules of Shanghai Gold Exchange*, and other relevant detailed rules.

SGE's clearing participants include all its members. SGE clears trades for its members, and each member in turn clears trades for its customers. In terms of CCP clearing services, SGE bears a range of external or internal risks. SGE has established a well-designed risk-management framework to control risks before, during and after trading. The organizational structure for comprehensive risk management of SGE includes the Risk Management Committee under the Board of Directors, Senior Management, business departments, branches, risk management department and internal audit department, in order to ensure the effectiveness and comprehensiveness of market risk management as well as the smooth operation of CCP clearing services.

This report is a self-assessment carried out by SGE on its CCP clearing services, in accordance with the requirement of PFMI, and follows the guidance of *PFMI*: *Disclosure Framework and Assessment Methodology*. The assessment was made using data available as of September 30, 2020.

II. General Background on SGE

General description of SGE's CCP clearing services and markets it serves

1. Trading

Products listed on SGE include precious metals products covering gold (Au), silver (Ag), platinum (Pt), gold coins, etc. SGE's CCP clearing services cover price matching trading and benchmark price trading. SGE reported an average annual turnover of RMB 21.88 trillion from 2016 to 2019, and a total turnover of RMB 34.74 trillion from January to September 2020 with a year-on-year growth of 59.12%. The latter figure includes RMB 18.94 trillion for 49,500 tons of gold, RMB 15.79 trillion for 3,244,600 tons of silver, RMB 13 billion for 67.52 tons of platinum and RMB 99.79 million for 257.82 kg of gold coins.

(1) Price matching trading

Price matching trading refers to the trading mode in which orders from market participants at the price they themselves determine are matched and filled by SGE first by price ("price priority") and then by time of submission ("time priority"). Price matching contracts are classified into physical contracts, spot contracts, deferred contracts and other derivative contracts by trading style. From 2016 to 2019, SGE had an average annual turnover of RMB 12.34 trillion in price matching trading. From January to September 2020, SGE's turnover in price match trading totaled RMB 24.44 trillion, representing 70.34% of the total market turnover, including RMB 8.76 trillion for 22,900 tons of gold, RMB 15.66 trillion for 3,215,300 tons of silver, RMB 13 billion for 67.52 tons of platinum, and RMB 99.79 million for 257.82 kg of gold coins.

Physical contracts. In physical contract trading, the buyer shall have the fund to cover the full transaction value at the time of order submission, and the seller shall have the bullion to cover the transaction at the time of order submission. The corresponding fund and bullion will be frozen immediately by SGE at order submission.

After an order is executed, the seller may use the delivery payment for other trades starting from the current day. A buyer of gold bullion may sell the bullion starting from the current day or apply for physical withdrawal. Active physical contracts traded on SGE cover gold, platinum and gold coins and include Au100g, Au99.99, Au99.95, Au99.5, iAu100g, iAu99.99, iAu99.5, Pt99.95 and PGC30g.

Spot contracts. In spot contract trading, the customer will enter into the trade on margin on T+0 and perform physical delivery on T+2 at the settlement price of T+0. If a customer holding a net position fails to perform physical delivery on T+2, SGE will consider the customer to have committed a delivery default and the rate of default penalty shall be 20%. Spot contracts traded on SGE cover silver and include Ag99.99.

Deferred contracts. In deferred contract trading, customers will buy or sell a particular deferred contract on margin through the centralized market of SGE, which could be cash-settled or physically delivered. In the case of cash settlement, settlement should be made on the final settlement day by cash at the final settlement price. In the case of physical delivery, the customers may choose to perform delivery on the transaction date or postpone it to a later date. A mechanism called Deferred Fee is implemented to address bullion imbalance in physical delivery. Deferred contracts traded on SGE cover gold and silver and include Au(T+D), mAu(T+D), Au(T+N1), Au(T+N2), NYAuTN06, NYAuTN12 and Ag(T+D).

(2) Benchmark price trading

In Benchmark Price Trading, market participants use the platform provided by SGE to submit intended buy or sell volumes in response to prices announced by SGE on the platform. The price at which the buy and sell volumes reach a relative balance will be fixed as the RMB-denominated Benchmark Price by which the orders will be executed. SGE listed Shanghai Gold

Benchmark Price Contracts (SHAU) and Shanghai Silver Benchmark Price Contracts (SHAG) respectively on April 19, 2016 and October 14, 2019. From 2016 to 2019, SGE recorded an annual turnover of RMB 318.89 billion on average in benchmark price trading. From January to September 2020, SGE's total turnover in benchmark price trading was RMB 308.77 billion, including RMB 274.21 billion for 703.65 tons of SHAU and RMB 34.56 billion for 7334.52 tons of SHAG.

2. Clearing and settlement

SGE, as the central counterparty, organizes the centralized clearing and settlement of every trade（including price matching trade and benchmark price trade）matched through or registered in its system.

From 2016 to 2019, SGE cleared 3.60 trillion on average per year. From January to September 2020, SGE cleared 3.36 trillion, up by 19.68% year on year.

In accordance with the "centralization, netting, and multi-tiered" principles, SGE performs centralized clearing of fund and bullion receivable or deliverable by its members based on trading results and provides performance guarantees for such trades. As a privileged participant of the High-Value Payment System of the PBC (hereinafter referred to as HVPS), SGE opens a concentration account with the PBC to hold the Trading Margin. Meanwhile, SGE opens a dedicated settlement account with each of Margin Custodian Banks (hereinafter referred to as Custodian Banks) to hold members' Settlement Reserve. SGE prudently selects 18 commercial banks with high credit rating to satisfy the business needs of SGE as Custodian Banks, including Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, and Bank of Communications, etc. Fund deposited into SGE's Settlement Account by members is accounted for separately by SGE. SGE establishes a subsidiary account for every seat of each member, and daily records and verifies in chronological order such entries as inbound and outbound fund transfers, gains and losses, Trading Margin, and transaction fees for each seat.

3. Delivery, storage and transportation

SGE offers a wide range of services relating to bullion, including but not limited to custodianship, delivery, assay and certification, as well as shipment and logistics. SGE's 70 Certified Vaults in 36 regions of China meet the bullion storage and load-in and load-out demands of upstream and downstream companies in the gold industry. SGE has set up a strict quality management system to ensure the stable and reliable quality of bullion.

Governance structure of SGE

SGE is a membership-based exchange with an organizational structure comprising the Members' Assembly, the Board of Directors and the Management (senior executives). The Members' Assembly of SGE shall be composed of General Members and exercise its powers in accordance with the law. The Board of Directors, a standing body of the Members' Assembly, is responsible for and reports to the Members' Assembly, implementing the resolutions and deliberating on major issues. Senior executives who are nominated by the PBC, appointed, dismissed, and supervised by the Board of Directors oversee the day-to-day affairs of SGE in accordance with the law.

The Board of Directors sets up a variety of specialized committees which are its deliberative bodies and assist the Board of Directors in its work. Members of the specialized committees include market participants, employees of SGE, and relevant professionals.

SGE has 19 departments including the General Office (General Office of the CPC SGE Committee), Trading Center, Delivery and Transportation Department, Clearing Department, Risk Management Department, Membership Department, Investor's Education and Market Promotion Department, Technical Operation and Maintenance Department, Technology R&D Center, International Development Department(Board Office), Legal and Internal Audit Department, R&D Department(Postdoctoral research Station), Human Resources Department(Organization Office of the CPC SGE Committee), Finance Department, Procurement Office, CPC Party Affairs Department (Communication Office of the CPC SGE Committee), Disciplinary Inspection Office, Beijing Member Services Department, and Shenzhen Backup Trading Center (Shenzhen Operation Center Preparation Group).In addition, SGE has three wholly owned subsidiaries, namely Shanghai International Gold Exchange Co., Ltd., Shanghai Gold Exchange and Communication Co., Ltd. and Shanghai Jin Shi Jie Express Co., Ltd.

The member of SGE is a legal entity or a business entity to trade in precious metals (i.e. gold, silver, and platinum) upon the approval of SGE, pursuant to applicable laws and regulations as well as relevant provisions of SGE's *Articles of Association* and rules. As of September 2020, SGE had 279 members, including 156 General Members consisting of 31 Financial Members and 125 Non-Financial Members; and 123 Special Members consisting of 8 Foreign-Invested Financial Members, 87 International Members, and 28 other Institutional Special Members including securities firms, trusts, small and medium banks, etc. Domestic members of SGE represented 90 % of China's gold production and consumption, and 95% of the country's refining capacity. International members included world-renowned gold refiners, active-trading commercial banks and investment banks. A customer may participate in trading activities on

SGE only through the members. As of September 2020, SGE had 10,429,900 customers, including 11,700 institutional customers and 10,418,200 individual customers.

Legal and regulatory framework

Currently, SGE conducts services under Chinese laws, and these services have a sound, clear, transparent and feasible legal basis. The PBC regulates the gold market of China in accordance with the *Law of the People's Republic of China on the People's Bank of China* and has formulated the *Rules on Supervision of Business Activities of the Shanghai Gold Exchange (PBC document No. 93[2011])*and other normative documents to supervise and guide SGE in its business activities.

SGE is a self-regulatory legal entity and formulates market rules pursuant to the *Rules on Supervision of Business Activities of the Shanghai Gold Exchange* and the *Articles of Association*. These market rules include the *Trading Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Risk Control of Shanghai Gold Exchange*, the *Measures for the Administration of Membership of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Detailed Delivery Rules of Shanghai Gold Exchange* and other relevant detailed rules.

System design and operation

SGE has independently designed and developed its core system in which relevant activities covering external entities system connection, trading, registration, clearing, settlement, delivery and risk management can be processed efficiently. Specifically, the core system is to:

- Support safe and stable interaction with external entities such as members and Custodian Banks in accordance with unified technical standards and specifications;
- Allow for price matching trading, benchmark price trading and other trading modes; enables automatic registration in such activities as opening and closing an account, Settlement Account Deposits and Withdrawals, and load-in and load-out;
- Perform efficient clearing for members per seat according to the "centralization, netting, and multi-tiered" model;
- Support timely completion of settlement instructions by connecting to the HVPS;
- Implement risk-management systems as daily mark-to-market, gains and losses, concentration monitoring, price limits, position limits, trading limits, and trade monitoring, as well as multi-scenario stress testing to effectively prevent and control relevant risks.

III. Principle-by-principle summary narrative disclosure

Principle 1: Legal Basis

Key consideration 1.1: The legal basis should provide a high degree of certainty for each material aspect of FMI's activities in all relevant jurisdictions.

SGE carries out CCP clearing services under Chinese laws. The laws, ministry-level rules and normative documents include: the *General Principles of the Civil Law of the People's Republic of China*, the *Law of the People's Republic of China on the People's Bank of China*, the *Guarantee Law of the People's Republic of China*, the *Property Law of the People's Republic of China*, the *Enterprise Bankruptcy Law of the People's Republic of China*, the *Commercial Bank Law of the People's Republic of China* , the *Electronic Signature Law of the People's Republic of China*, the *Emergency Response Law of the People's Republic of China*, the *Administrative Measures for Emergency Response Plan of the People's Bank of China*, the *Regulations of the People's Republic of China on the Control of Gold and Silver* and the *Rules on Supervision of Business Activities of the Shanghai Gold Exchange.*

SGE has a high degree of legal certainty in establishment, operation and business development. The *Law of the People's Republic of China on the People's Bank of China* authorizes the PBC to regulate the gold market of China. Article 4 thereof stipulates that the PBC shall have the duty to regulate the gold market and Article 32 thereof prescribes that the PBC shall have the right to inspect and supervise the implementation of rules and regulations on the gold market of the financial institutions, other organizations and individuals. The *Rules on Supervision of Business Activities of the Shanghai Gold Exchange* and other normative documents as well as relevant rules of SGE approved or put on record by the PBC provide a legal basis for the PBC to authorize SGE to organize trading of gold and other precious metals and perform centralized clearing.

Novation. Paragraph 1 of Article 77 ("The parties may modify a contract upon agreement through consultation.") and Article 88 ("A party may concomitantly assign his rights and delegate his obligations under a contract to a third person with the consent of the other party.") of the *Contract Law of the People's Republic of China* support SGE in interposing as a CCP between the trading parties in transaction agreements, to be the buyer for each seller and the seller for each buyer, so as to guarantee the fulfillment of all open contracts.

Close-out netting. Firstly, Paragraph 1 of Article 99 ("Where the parties mutually owe obligations that become due to each other, and the subject matter of the obligations are of the same kind and quality, any party may offset its obligation against the obligation of the other party, unless the obligations cannot be offset by virtue of their nature, or in accordance with the agreements by the parties or the provisions of law.") and Article 100 ("Where the parties mutually owe obligations to each other and the subject matter of the obligations are not of the same kind or quality, the obligations may also be offset upon agreement by the parties through consultation.") of the *Contract Law of the People's Republic of China* respectively provide a solid legal basis for the close-out netting of products of the same type and different types under Chinese laws. Secondly, *NAFMII MASTER AGREEMENT (2009 VERSION)* specifies close-out netting. *The Announcement [2009] No.4 of the PBC* further explicitly the close-out netting agreement in *NAFMII MASTER AGREEMENT* shall be applicable for financial derivative transactions. Thirdly, the *Reply Letter to the Proposal No. 2691 of the Fifth Session of the 12th National People's Congress* issued by the China Banking Regulatory Commission (CBRC) also explicitly recognizes the role of close-out netting in such areas as bank capital requirements.

Settlement finality. From the perspective of laws and regulations**,** settlement by SGE as a CCP cannot be reversed once completed. The legal basis mainly lies in the *Provisions on the Banking Financial Institutions' Assistance in Inquiry and Freeze by the People's Procuratorates, Public Security Authorities and State Security Authorities（CBRC document No. 53[2014]）*issued by CBRC, the Supreme People's Procuratorate, the Ministry of Public Security and the Ministry of National Security. Article 21 thereof sets out circumstances where properties and accounts shall not be frozen. Furthermore, pursuant to the *Trading Rules of Shanghai Gold Exchange* and the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange* and other rules approved by or put on record by the PBC, settlement by SGE as a CCP, once completed, shall be final and irrevocable for a specific period.

The isolation and portability arrangements for collaterals. Article 85 of the *Interpretations of the Supreme People's Court on Issues Concerning the Application of the Guaranty Law of the People's Republic of China*, Article 208 of the *Property Law of the People's Republic of China*, and Article 66 of the *Guaranty Law of the People's Republic of China* provide legal support for relevant issues. SGE's rules also contain applicable provisions with respect to the aforesaid issues.

Default Management. Firstly, Article 107 of the *Contract Law of the People's Republic of China* regulates that "Where a party fails to perform his contractual obligation or his performance does not conform to the agreement, he shall bear default liability such as continuing to perform his obligations, taking remedial measures, or compensating for losses". Secondly, default management is specified in SGE's relevant rules approved by or put on record by the PBC. In addition, the analogous application of judicial guidance and laws may further enhance the legal effect of CCP clearing. Judicial authorities shall comply with the *Guidance* *on the Provision of Judicial Safeguards by People's Courts in Preventing and Alleviating Financial Risks and Promoting Financial Reform and Development (No.3 [2012] of the Supreme People's Court of the People's Republic of China)*. Further, judicial practices involving the application of laws to SGE's CCP clearing services show the trend of respecting the characteristics of financial market transactions and exempting them from application of some laws.

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

All relevant rules, procedures and agreements of CCP clearing services of SGE are clear, understandable and consistent with relevant laws and regulations.

When making updates (or revisions) to its legal documents such as rules, procedures and agreements, SGE conducts a survey on market participants such as members, customers and Custodian Banks, invites experts from law firms, judicial authorities, and other institutions to discuss and assess the legal issues involved, organizes discussion meetings with market participants to solicit their comments on the legal documents, and convenes the Members' Assembly to vote on such updates (or revisions) and explain and communicate relevant legal arrangements for business.

Before promulgating and implementing such rules, SGE submits updates (or revisions) to the PBC for approval or for record in accordance with regulatory requirements. Meanwhile, SGE discloses adjustments of relevant rules on its website.

In addition, SGE provides periodic training on such rules, procedures and agreements to members, customers, Custodian Banks, and other market participants.

Key consideration 1.3: 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.

SGE has formulated a full set of rules, procedures and agreements in a clear and understandable way to articulate the legal basis for all activities to the authorities, members and customers respectively.

SGE articulates the legal basis of business activities to the PBC by submitting relevant rules, procedures and agreements for approval or for record with detailed documents explaining the legal relations involved.

SGE articulates the legal basis of relevant rules, procedures and agreements to members, customers, Custodian Banks, and other market participants by signing agreements, conducting Q&A sessions, providing specific business guidelines and business training to ensure that market participants understand the legal basis for its activities.

Key consideration 1.4: 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.

Relevant rules, procedures and agreements of the CCP clearing services of SGE are formulated in accordance with Chinese laws and enforceable in the People's Republic of China. The rights and obligations between market participants (including members) and SGE shall abide by Chinese laws.

According to the powers granted by the *Law of the People's Republic of China on the People's Bank of China*, the PBC supervises the gold market of SGE by approving or putting on record SGE's all specific rules, procedures and agreements for the gold market. Activities conducted by SGE in accordance with the rules, procedures and agreements approved or put on record by the PBC shall not be abolished, cancelled or suspended. In addition, judicial interpretations for the financial market have confirmed the validity of business rules approved by regulators. So far, there is no court decision to deny the relevant actions or arrangements made by SGE.

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

Currently, the CCP clearing services of SGE is only carried out under Chinese laws instead of multiple jurisdictions. Matters related to the participation of international members in SGE's CCP clearing business shall be governed by Chinese laws. Moreover, SGE engages law firms with multi-jurisdictional experience to identify and warn against potential risks.

Principle 2: Governance

Key consideration 2.1: 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.

SGE is committed to supporting financial stability and other relevant public interest, giving priority to fairness, safety, and efficiency.

The *Articles of Association* specifies the mission of SGE as follows: improving financial market frameworks, promoting the development of the precious metal market, regulating the activities of SGE, and protecting the lawful rights and interests of all market participants. SGE further specifies its objectives by stating "The Exchange is committed to promoting market development and to organizing the trading of gold and other precious metals as well as to providing the related services for members and investors in an efficient and cost-effective manner and on a fair, equitable, open, and good faith basis" in the *Articles of Association*.

SGE is legally subject to the regulation and guidance of the PBC. Pursuant to the *Rules on Supervision of Business Activities of the Shanghai Gold Exchange*, the PBC has explicitly defined SGE's business scope, functions and responsibilities, and business maintenance mechanism, which further makes it clear at the regulatory level that SGE's objectives are to maintain the stability of financial markets and promote the healthy and balanced development of the financial markets. In accordance with regulatory requirements, SGE is committed to:

- Continuously improving its business systems, networks, and hardware facilities;
- Establishing sound emergency response, disaster recovery and system backup mechanisms and well-designed data security protection and data backup systems to ensure the safety of trading data and communication systems;
- Establishing a robust internal control and risk-management mechanism and a complete risk-management system and regularly conducting internal audit and inspection of its business operations;
- Formulating and implementing relevant business rules and their detailed rules in accordance with the requirements of the PBC, strengthening the backup optionality and rotation management of key positions , in order to maintain the safety and stability of the market.

To improve the comprehensive management level and emergency response ability, SGE has issued the *Emergency Response Procedures of Shanghai Gold Exchange*, which covers procedures for the resolution of network and information security events, extreme market conditions, public sentiment emergencies, mass events, major disasters, workplace emergencies, bullion storage and transportation emergencies, and other emergencies, covering the whole process from prevention of emergencies, responses to emergencies, and resolution of emergencies to post-emergency management. SGE has set up emergency response working groups to organize the resolution of emergencies and issues, and submit relevant reports to the PBC, thereby strongly ensuring the safety and stability of its business activities.

Key consideration 2.2: 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.

Established by the PBC upon the approval of the State Council and registered with the State Administration for Industry and Commerce, SGE is a self-regulatory and membership-based legal entity which is subject to the regulation and guidance of the PBC.

In accordance with its *Articles of Association*, SGE has established a robust governance structure comprising the Members' Assembly, the Board of Directors and the Management (senior executives). The Members' Assembly is composed of General Members and exercises its powers accordingly. The Board of Directors, a standing body of the Members' Assembly, is responsible for and reports to the Members' Assembly, implementing the resolutions and deliberating on major issues. The senior executives are nominated by the PBC, and they are appointed, dismissed, and supervised by the Board of Directors. The senior executives oversee the day-to-day affairs of SGE in accordance with the law.

Regulators at multiple levels conduct audit and inspection to ensure SGE's daily operations comply with the regulatory requirement, and maintain the safe and stable operation of the financial market. In addition, SGE carries out annual internal audit or business inspection to improve its internal management and control mechanism.

The governance structures of SGE, including the composition of the Board of Directors, the Management and the organizational structure, have been fully disclosed on its website.

Key consideration 2.3: 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.

The *Articles of Association* clearly defines the roles and responsibilities of the Board of Directors (including its members) as well as its rules of procedure to ensure that it performs the duties effectively.

The Board of Directors mainly exercises the following powers:

- To convene and report to the Members' Assembly;
- To implement the resolutions of the Members' Assembly;
- To draft the *Articles of Association*, *Trading Rules*, and *Membership Rules* as well as the amendments thereto;

- To formulate and amend the market rules of SGE such as risk and financial management rules;
- To elect the Chairman and Vice Chairmen based on the nomination of the PBC ;
- To appoint or dismiss the President and Vice Presidents based on the nomination of the PBC and to supervise their performance of duties;
- To determine the formation and composition of specialized committees;
- To deliberate on and approve the rules governing the Risk Reserve and the use of said fund;
- To decide on the engagement or dismissal of the accounting firm that performs audit services for SGE;
- To deliberate on and approve the annual work reports and work plans of the President;
- To deliberate on and approve SGE's budget plans, final account reports, implementing rules, major investments, development plans, external investment and cooperation programs as well as emergency measures.

The main rules of procedure of the Board of Directors are described as follows: the Board of Directors shall hold at least two meetings each year which shall be convened by the Chairman. If necessary, the Chairman may convene an extraordinary Board meeting. At least two-thirds of all Directors shall be presented at a Board meeting to make a quorum. Every resolution at the meeting shall be approved by a majority of the attending Directors and those on specified matters shall be approved by at least two-thirds of all attending Directors.

Pursuant to the *Work Procedures for Specialized Committees of the Board of Directors of Shanghai Gold Exchange*, the Board of Directors sets up specialized committees which are its deliberative bodies and assist the Board of Directors in its work. Members of the committees shall include market participants, employees of SGE and relevant professionals. These specialized committees are consist of the Strategic Development Committee, Risk Management Committee, Membership Committee, Business Committee, Technology Committee, and Remuneration Committee. The specific duties of each committee are set out in the *Work Procedures for Specialized Committees of the Board of Directors of Shanghai Gold Exchange*.

Key consideration 2.4: 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).

Pursuant to the *Articles of Association*, the Board of Directors shall consist of 11 to 15 Directors, including at least 4 Non-Member Directors and at least 7 Member Directors. Member Directors shall be elected by the Members' Assembly and Non-Member Directors shall be appointed or designated by the PBC.

The Board of Directors shall have one Chairman and one to two Vice Chairmen. The Chairman and Vice Chairmen shall be nominated by the PBC and elected by the Board of Directors. Both the Chairman and Vice Chairmen shall serve a term of three years which is renewable upon their re-election.

As of September 30th, the Board of Directors had 15 Directors, including 5 Non-Member Directors and 10 Member Directors, and one Chairman and one Vice Chairman. All Member Directors are the senior executives of the most representative domestic gold producers and consumers, commercial banks, and non-banking financial institutions, who are experienced experts in financial and gold markets and have professional integrity required to perform the operation and risk management duties of FMI. As a membership-based legal entity, SGE forms a community of common interests with its members, which is basically aligned with SGE's development objective. In turn, SGE's sound development is in line with the Directors' interests. These factors enable Directors to perform their duties properly.

Relevant provisions on the election procedures for Directors (including Non-Member Directors) and the Chairman, and the restriction of their rights ensure that the members of the Board of Directors have appropriate experience and skills to perform their duties.

Key consideration 2.5: 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.

The *Articles of Association*, which gives clear and explicit arrangements on the roles and powers of senior executives, prescribes that SGE shall have one President and four Vice Presidents, each of whom shall be nominated by the PBC and appointed or dismissed by the Board of Directors. A President or Vice President shall serve a term of three years which is renewable upon the re-appointment.

The President shall mainly exercise the following powers:

- To oversee the day-to-day affairs of SGE;
- To organize the implementation of rules, regulations, and resolutions adopted by the Members' Assembly and the Board of Directors;
- To draft the foundational market rules of SGE and to develop and implement the related detailed rules;
- To prepare the budget plans and final accounts of SGE;
- To draft the external investment and cooperation plans and programs of SGE;
- To draft the major investment plans of SGE;

- To draft the emergency measures in response to abnormal situations;
- To draft the plan for the use of the Risk Reserve.

When nominating the Management, the PBC fully considers the professional experience, skills and other related factors of candidates to ensure that the Management is experienced and qualified for the operation and risk management of SGE, with multiple skills and professional integrity. Meanwhile, the PBC has established relevant regulatory mechanism to ensure the performance of duties by the Management.

Key consideration 2.6: 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.

SGE has established a comprehensive risk-management framework covering the Board of Directors and the Risk Management Committee under the Board of Directors, Senior Management, business departments, branches, risk management department and internal audit department. The Board of Directors shall take responsibility for risk management pursuant to the *Articles of Association.* The Risk Management Committee acts as a professional consulting body in comprehensive risk management. The senior executives, holding the role as the decision body, are responsible for risk management enforcement and implementation of the decisions of the Board of Directors. Business departments, branches, Risk Management Department, and Legal and Internal Audit Department are critical components of the comprehensive risk-management system, which build up the "three lines of defense" for the risk management of SGE. All business departments and branches jointly constitute the first line of defense and assume the primary responsibility for risk management. Risk Management Department, Legal and Internal Audit Department, Investor's Education and Market Promotion Department, Membership Department, Technology R&D Center, Technical Operation and Maintenance Department, and other relevant departments form the second line of defense, to manage the specific risks. The Risk Management Department is a specialized department in charge of comprehensive risk management. It takes the leading role in the management of the second line of defense, generating the risk reports of SGE, and performing the daily management of comprehensive risks. The Legal and Internal Audit Department is the third line of defense, which is responsible for auditing the performance of risk management in various business departments and conducting review and assessment of the adequacy and effectiveness of comprehensive risk management independently and objectively.

Meanwhile, SGE engages external auditors to conduct audit as needed so that SGE can analyze the risks objectively and neutrally, and obtain recommendations on risk management. In addition, SGE will report the details to the PBC in case of any major risk event.

Key consideration 2.7: 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.

As an FMI, SGE simultaneously meets multiple requirements such as implementing regulatory requirements, coordinating peer cooperation, satisfying market demands, and serving the development of the market. According to regulation requirements of the PBC and The *Articles of Association,* SGE is committed to promoting market development and providing the related services for members and investors in an efficient and cost-effective manner and on a fair, equitable, open, and good faith basis, which demonstrates that the overall strategy and major decisions of SGE can reflect the legitimate interests of members, customers and other relevant stakeholders.

As of September 30th, there was 10 Member Directors of 15 in total, which accounted for a reasonable proportion. The Member Directors and the specialized committees of the Board of Directors can typically represent the interests of members.

The specialized committees under the Board of Directors are composed of senior executives and experts from members. The general director of each specialized committee is a Director and the deputy general director is the manager of SGE's relevant departments. General directors and deputy general directors may attend the relevant Board meetings as non-voting participants. Members, customers and other relevant stakeholders declare their views and demands through such committees to reflect their legitimate interests. Furthermore, the Membership Committee mediates economic controversies and disputes among members, customers, and other businesses SGE involved.

When making updates (or revisions) to its legal documents such as rules, procedures and agreements, SGE conducts a survey on market participants such as members, customers and Custodian Banks, invites experts from law firms, judicial authorities, and other institutions to discuss and assess the legal issues involved, organizes discussion meetings with market participants to solicit their comments on the legal documents, and convenes the Members' Assembly to vote on such updates (or revisions), and explain and communicate relevant legal arrangements. Before promulgating and implementing such legal documents, SGE submits updates (or revisions) to the PBC for approval or for record in accordance with regulatory requirements.

The governance structures of SGE are all disclosed to the public on its website. SGE prepares annual Market Report to disclose information on its business data, business development, major events, and member structures, etc. Further, SGE discloses such information as the launch of important new products through media, WeChat Official Account and other channels in timely manner. Such disclosures comply with the *Measures for the Administration of News Publicity of Shanghai Gold Exchange*. In addition, SGE provides regular training for its members, customers, Custodian Banks, and other market participants.

<u>Principle 3: Framework for the comprehensive management of risks</u>

Key consideration 3.1: An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.

SGE bears a range of internal and external risks, including legal risk (see Principle 1), credit risk (see Principle 4), liquidity risk (see Principle 7), market risk (see Principle 6), physical delivery risk (see Principle 10), general business risk (see Principle 15), custody and investment risk (see Principle 16), and operational risk (see Principle 17).

SGE has set up a well-designed legal risk evaluation mechanism, which provides strong support for its management of legal risk discussed in Principle 1.

SGE has set up a series of risk-management measures to manage credit risk discussed in Principle 4, liquidity risk discussed in Principle 7 and physical delivery risk discussed in Principle 10. These measures are intended to ensure the effectiveness and comprehensiveness of risk management of SGE, members, customers, Custodian Banks, refiners, delivery vaults, and other entities. These measures include, among others, collateral management, Custodian Bank assessment, multiple Custodian Bank mechanism, “one account, one code” system, price limits, margin requirements, forced liquidation, daily mark-to-market, margin call, bullion quality management and Certified Vault management. Financial resources used by SGE to cover credit risk can cover its current and potential exposures of a single member at a confidence level of no less than 99%.SGE has set a default waterfall (including the Risk Reserve) for tail risks uncovered by collaterals. SGE has adequate liquid resources, a prudential policy on acceptable collateral, a well-funded Risk Reserve and credit lines from Custodian Banks to effectively cope with liquidity risks under stress scenarios. SGE fully manages physical delivery risks by implementing a strict quality certification management system, comprehensively regulating the custody, transfer and transportation of bullion by Certified Vaults and developing an advanced and efficient core system for physical delivery.

In designing its margin requirements, SGE has considered market risk and risk attributes of each contract, as detailed in Principle 6. SGE regularly conducts backtesting on the margin model for each contract to ensure that multiple identified risks, including model risk, are excluded.

SGE continuously identifies and monitors general business risk discussed in Principle 15 through reasonable organizational structure, division of duties, audit and supervision, assessment and evaluation system, robust financial management and control systems. SGE has accumulated adequate and highly liquid net assets funded by equity which can cover its operating expenses for at least six months. As SGE focuses on its main business and has adequate financial resources to cover general business risk, it rarely happens that its equity capital would be less than the minimum requirement.

SGE elaborates its management of custody and investment risk in Principle 16. SGE strictly segregates its own assets from participants' assets and separately records them in account books. Currently, SGE only invests its own assets into bank deposits. SGE has established management rules for the custody and investment of participants' assets and has designed strict access, real-time monitoring, periodic assessment, and other measures to ensure the safety of assets under custody.

SGE manages operational risk discussed in Principle 17 by taking such steps as putting in place detailed and clear business procedures, conducting sufficient system testing and ongoing system monitoring, adopting four eye principle, setting up human resource performance indicators, signing agreements with public utility providers, and carrying out emergency response drills, internal inspections, and external evaluations.

SGE has established a comprehensive risk-management framework covering the Board of Directors and the Risk Management Committee under the Board of Directors, Senior Management, all business departments, branches, risk management department and internal audit department. The Board of Directors shall take responsibility for risk management pursuant to the *Articles of Association.* The Risk Management Committee acts as a professional consulting body in comprehensive risk management. The senior executives, holding the role as the decision body, are responsible for risk management enforcement and implementation of the decisions of the Board of Directors. All business departments, branches, Risk Management Department, and Legal and Internal Audit Department are critical components of the comprehensive risk-management system, which build up the "three lines of defense" for the risk management of SGE. All business departments and branches jointly constitute the first line of defense and assume the primary responsibility for risk management. Risk Management Department, Legal and Internal Audit Department, Investor's Education and Market Promotion

Department, Membership Department, Technology R&D Center, Technical Operation and Maintenance Department, and other relevant departments form the second line of defense, to manage the specific risks. The Risk Management Department is a specialized department in charge of comprehensive risk management. It takes the leading role in the management of the second line of defense, generating the risk reports of SGE, and performing the daily management of comprehensive risks. The Legal and Internal Audit Department is the third line of defense, which is responsible for auditing the performance of risk management in various business departments and conducting review and evaluation independently and objectively on the adequacy and effectiveness of comprehensive risk management.

SGE sets up well-designed risk-management rules and business procedures to manage and control all kinds of risks accordingly, to ensure the effectiveness of the comprehensive risk management including SGE, its members and other market participants. SGE shall update the rules and procedures as needed to maintain a high-standard risk-management framework and other necessary tools to manage risks.

SGE has independently developed a sound real-time risk monitoring system to identify, measure, monitor, and manage the risks aforementioned. The real-time risk monitoring system can consolidate the risk exposures of each seat, conduct real-time monitoring of trading, price movements, position holdings, Settlement Account Deposits and Withdrawals, collateral, and physical delivery, and evaluate corresponding risks.

In addition, SGE has built an internal audit system for the risk-management framework, which covers its overall businesses and operations to ensure the smooth operation of its CCP clearing services. Meanwhile, SGE conducts internal audit for major projects to identify risks and improve business procedures. Further, SGE is audited by the national audit authority, the PBC, and third-party auditor on risk-based principles, covering its annual financial statements, business rules, system operation, internal management, etc.

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

SGE motivates members to strengthen their risk management and control through multiple channels such as membership admission, ongoing monitoring, business training, punishment of violation members, and rewarding members for outstanding performance, etc.

SGE classifies its members into General Members and Special Members and sets admission standards for each type of member. General Members are categorized as Financial Members, Non-financial Members and Proprietary Members according to their scope of business.

Financial Members may engage in proprietary business, brokerage business, and other businesses approved by regulatory authorities; Non-financial Members may engage in proprietary business and brokerage business for corporate customers; while Proprietary Members may only engage in proprietary business. Special Members include International members, Foreign-invested Financial Members and other institutional investors recognized by SGE.

If a member is involved in a merger, division, suspension of business operations, dissolution, or insolvency, or the member no longer meets the requirements for offering brokerage services, SGE may arrange for customer transfer.

SGE has the right to inspect and supervise the eligibility of its members, qualifications of traders and business operations of the members and, based on facts and evidences through investigation, to take regulatory actions, such as giving an oral warning, issuing a written letter, requiring rectification, arranging a meeting, and initiating a special investigation, against members who have misbehaved or are likely to misbehave. If a member violates applicable risk-management rules, SGE may, according to the severity level of such violation, take the following actions against the member by arranging a warning appointment, issuing a written letter, circulating a notice of criticism, issuing a censure, suspending the opening of new positions, suspending or restricting business, and adjusting or revoking membership, etc.

SGE clears trades for its members, and the members clear trades for their customers. SGE separately manages the fund deposited by members to its Settlement Account, establishes a subsidiary account for every seat of each member, and daily records and verifies in chronological order such entries as inbound and outbound fund transfers, gains and losses, Trading Margin, and transaction fees for each seat. SGE implements such rules as margin requirements, price limits, Deferred Fee, Extended Position Fee, position limits, trading limits, large position reporting, forced liquidation, risk warning, irregular trade monitoring, and Risk Reserve to strictly manage risks.

Besides, SGE timely releases quotations, settlement data and documents, and other information to the market pursuant to applicable rules. Applicable laws, ministry-level regulations, normative documents, and other rules are accessible on the website of SGE. SGE holds periodic seminars and member training sessions, issues professional certificates to strengthen the business ability of members, encourages the members to enhance the risk control functionalities and gives risk warning through daily liaison mechanism in practice.

Key consideration 3.3: 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.

SGE adopts different methods to evaluate and control risks it bears from and poses to different entities as a result of interdependence and continuously updates its risk-management tools considering the internal and external factors such as changes in market development, trading activities and so on.

SGE identifies, measures, and monitors risks from members and their customers pursuant to the overall risk control rules and principles described in key considerations 3.1 and 3.2. In addition, when a member cannot submit quotations due to a malfunction of communication lines of the member or between the member and SGE or any other reason, SGE is able to provide such member with conditional emergency quotation services.

To manage risks from Custodian Banks, SGE prudently selects financial institutions meeting its business needs as Custodian Banks, based on the size of assets, creditworthiness, capability of liquidity provision, level of systematic importance, level of internal control, support capability of IT systems, and other factors. SGE has selected 18 commercial banks which have a high credit rating as Custodian Banks, including Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, and Bank of Communications, etc. All Custodian Banks designated by SGE accept the supervision of state authorities and are direct participants of the PBC's HVPS. Each year, SGE, based on their actual business operations, assesses and manages these Custodian Banks and conducts a comprehensive assessment on their compliance, business capacity, service quality, and technical competence with respect to their margin custody business. If a Custodian Bank fails to fulfill its corresponding obligations, SGE may request it to make rectifications and according to the severity of the failure, take actions against it, such as giving a warning, issuing a notice of criticism, requiring the member to replace the Custodian Bank, suspending the provision of margin custody services to new members, suspending the provision of margin custody business, and revoking the qualification of the Custodian Bank. Besides, Custodian Banks are also the members of SGE which are comprehensively monitored and supervised in accordance with applicable membership management rules.

To manage risks from delivery vaults, SGE sets up relevant management rules, refines procedures, and screens risks for the Certified Vaults to tackle potential bullion custody risk.

SGE monitors and manages substantial risks it bears from power suppliers, IT service providers, telecommunication service departments, and other utility providers in accordance with applicable regulations of the state.

Key consideration 3.4: 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.

As a membership-based legal entity under the supervision and guidance of the PBC, SGE accumulates adequate and highly liquid assets, possesses the capability to comprehensively and systemically identify various scenarios that may potentially prevent it from critical operation breakdown, and maintains a sound contingency plan for business sustainability.

Pursuant to *Emergency Response Law of the People's Republic of China*, *Emergency Response Plan Management Measures of the People's Bank of China* and other regulations, SGE has formulated the *Emergency Response Procedures of Shanghai Gold Exchange*, which covers procedures for the resolution of network and information security events, extreme market, public sentiment emergencies, mass events, major disasters, workplace emergencies, bullion storage and transportation emergencies, and other emergencies, and imposes general requirements on resolution procedures and operational practices such as early warning, incident response and treatment, and aftermath emergency management. In addition, SGE has set up emergency response working groups to organize the resolution of such emergency and issue and submit a risk evaluation report to the PBC as required, thereby strongly ensuring the safety and stability of its business activities.

Pursuant to *Trading Rules of Shanghai Gold Exchange*, *Measures for the Administrative of Risk Control of Shanghai Gold Exchange*, *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, *Interim Provisions of Shanghai Gold Exchange on Irregular Trade Monitoring*, and other rules, SGE may:

Upon the occurrence of risks such as insufficient fund, over-limit positions and violation of rules, close the open positions of a member seat or a customer to release the fund for mitigation of such risks. If the cumulative change in the price of a contract or the cumulative increase in open interest in a contract reaches a prescribed threshold, according to market conditions and applicable rules, take one or a combination of such the following actions to mitigate market risks as raising the Trading Margin and Settlement Reserve requirements for one or both trading directions by the same or different percentage points for some or all member seats, restricting Settlement Account Withdrawals by some or all member seats, suspending the opening of new positions by some or all member seats, adjusting price limits, requiring the closing of positions within a specified time frame, and/or enforcing liquidation of open positions.

Upon the occurrence of a Limit-Locked Market for consecutive days, according to market conditions and applicable rules, take one or a combination of such the following actions to mitigate market risks as adjusting Trading Margin rates, suspending or restricting the opening of new positions by some or all member seats, adjusting price limits, Deferred Fee, or Extended Position Fee, restricting Settlement Account Withdrawals, requiring the closing of positions within a specified time frame, enforcing liquidation of open position, and/or suspending the market.

Upon occurrence of abnormal trading activities, according to applicable rules, take one or a combination of the following actions in conjunction with other risk control measures to warn against and mitigate risks by requiring the submission of a report, arranging a warning appointment, issuing a warning letter, issuing a censure, and/or issuing a risk warning notice.

In the case of a default by a member, SGE may cover losses from the default with relevant financial resources pursuant to applicable rules to timely prevent the spread of financial risks. In addition, SGE carries out default management drills jointly with market participants and has developed default rules in theoretical and practical soundness.

SGE does not use its own assets to invest any other lines of business and since its establishment, and has accumulated sufficient and highly liquid net assets funded by equity which can support and ensure its business continuity and are able to support its sustainable and stable operation in the event of potential general business risks incurred by its CCP clearing services. Moreover, SGE highly focuses on the prevention and disposal of various risk events and can deal with a wide range of internal and external risks in a comprehensive, timely and reasonable manner. Therefore, SGE could rarely terminate its business due to risk events. SGE has detailed provisions for dissolution and the corresponding options for recovery or orderly wind-down in its *Articles of Association* to fully protect the interests of all market participants.

Principle 4: Credit risk

Key consideration 4.1: An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

SGE has a comprehensive and robust framework to manage its credit exposures to its members and credit risks arising from its trading, payment, clearing, settlement, and delivery processes.

SGE sets up a credit risk-management framework, with the *Trading Rules of the Shanghai Gold Exchange* as its core and the *Measures for the Administration of Risk Control of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Detailed Delivery Rules of Shanghai Gold Exchange*, the *Measures for the Management of the Risk Reserve of Shanghai Gold Exchange*, the *Interim Provisions of Shanghai Gold Exchange on Irregular Trade Monitoring* and other detailed business rules as its support.

SGE formulates the *Measures for the Administration of Membership of Shanghai Gold Exchange* to enhance the management of risks from its members through membership admission, ongoing monitoring, business training, punishment of violation members, rewarding members for outstanding performance and other means.

SGE sets up a complete risk control framework that covers risks before, during and after trading.

Control of risks before trading

- Margin requirements

SGE ensures that the balance of fund of members or customers is verified before their trading and when their fund is insufficient to meet margin requirements, they are not allowed to execute a position-opening trade. Trading Margin used to cover current risk exposures may cover losses at the confidence level of no less than 99% and may cover risk exposures in extreme market conditions with other financial resources.

- Price limits

SGE sets daily price limits for all price matching contracts to control daily market risk to a certain level.

- Minimum Settlement Reserve requirements

SGE imposes minimum Settlement Reserve requirements on each member by seat based on the scale and type of the member's business and market conditions and requires members to pay the minimum Settlement Reserve with their own capital to control their risks and settle their outstanding fees.

- Position limits

SGE sets the maximum size of long or short positions in a particular contract each member seat or customer is permitted to hold in order to prevent market risk and price manipulation risk resulting from concentrated positions.

Control of risks during trading

- Trading limits

SGE prescribes the maximum number of position-opening trade in a particular contract a member or customer is permitted to execute within a set period.

- Extended Position Fee

SGE may charge Extended Position Fees for open positions on deferred contracts held beyond a prescribed period.

- Transaction fee adjustment

SGE may adjust transaction fees to effectively reduce excessive speculative trades caused by an overheated market.

- Real-time risk monitoring system

In accordance with the requirements of the *Interim Provisions of Shanghai Gold Exchange on Irregular Trade Monitoring*, SGE monitors frequent placement of orders, frequent cancellation of orders, placement and cancellation of large orders, wash sales and other activities of members or customers on a real-time basis to effectively supervise and detect such trading irregularity in price movement, placement of orders, execution of trades, or holding of positions, and prevent market manipulations such as wash sales, "buy-high, sell-low" trades, and pre-arranged trading, to maintain the smooth and orderly functioning of the market.

Control of risks after trading

- Large position reporting

When the position limit of a member's proprietary seat or brokerage seat or of a single customer exceeds the universal position limit applicable to the relevant contract and the open positions held by said seat or customer reach 80% of the position limit, or upon request by SGE, the member or customer shall report details on its fund and open positions to SGE. The customer's report shall be submitted through its carrying member.

- Forced liquidation

This is the compulsory action whereby SGE closes out the open positions of a member seat upon the occurrence of risks such as insufficient fund, over-limit positions and violation of rules to release fund for mitigation of the risks. If the Settlement Reserve of the member still falls below the required minimum and the member fails to eliminate within the specified time frame after the forced liquidation, SGE shall be entitled to suspend such member's relevant businesses and resolve the default in accordance with the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*.

- Risk warning

SGE may, whenever it deems necessary, take one or more of the following actions to warn against and mitigate risks by requiring the submission of a report, arranging a warning appointment, issuing a warning letter, issuing a censure, and issuing a risk warning notice.

SGE adopts Mark-to-market risk control measures and employs its core system to monitor, measure and quantify its credit exposures from members on a real-time basis, and sets a default waterfall for tail risks uncovered by collaterals.

Key consideration 4.2: An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

The credit risk arises from the members who fail to fulfill their payment obligations during and after settlement, including current and potential risk exposures.

SGE identifies and measures its credit exposures through real-time monitoring and intraday pre-clearing, calculates the Trading Margin, gains and losses, and other capital items of members in real time, and evaluates the credit risk exposures. SGE has the right to warn any member by telephone who poses large risk exposures to SGE and can eliminate such risks by requiring them to deposit additional margins by the end of each day.

SGE can identify and measure its credit exposures by using its core system to simulate specific scenarios, and the parameters for which may be set based on market risk conditions, for example, SGE may preset the Trading Margin parameters for each contract according to the Trading Margin and price limit arrangements for public holidays, adjust such parameters for each contract according to the size of positions in such contract, or preset such parameters based on anticipated future risk conditions.

After day-end settlement, SGE shall issue a margin call based on the settlement results to any member whose Settlement Reserve is below the minimum balance required by SGE. The difference between the two shall be the amount of additional margin the member needs to deposit. Any member receiving a margin call shall ensure that it meets the minimum Settlement Reserve before market opens on the following trading day. SGE shall take risk control actions against the member who fails to eliminate the shortfall within the prescribed time frame, such as suspending the opening of new positions by the member and enforcing liquidation of open positions, in accordance with the *Measures for the Administration of Risk Control of Shanghai Gold Exchange*.

To control the risks aforementioned, SGE implements daily mark-to-market, price limits, margin requirements, position limits, trading limits, large position reporting, forced liquidation, and other risk control tools.

Custodian Banks are also the members of SGE. SGE takes a range of measures, such as strict admission standards, regular assessments, liquidity monitoring and warning, Custodian Bank balance mechanism, and fund transfer, to ensure that it has enough information to understand and manage credit risk associated with Custodian Banks. Moreover, as a privileged participant of the PBC's HVPS, SGE opens a concentration account in HVPS to hold members' Trading Margin to effectively reduce credit risk from Custodian Banks.

Key consideration 4.4: A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence by 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.

SGE's financial resources used to cover credit risk include margins, Risk Reserve and other matters. Trading Margin collected by SGE is adequate to cover its current and potential exposures to each member at the confidence level of no less than 99%.

SGE enforces margin requirements. Margins, segregated into Settlement Reserve and Trading Margin, are used to settle trades and guarantee contract performance. Trading Margin refers to the fund maintained by a member under the SGE Settlement Account to guarantee the performance of trades, which is already in use to maintain existing open positions of the member. Settlement Reserve refers to the fund maintained by a member under the SGE Settlement Account for settling trades, which is not yet used by existing open positions of the Member. SGE requires its members to maintain a minimum Settlement Reserve balance based on the types of their seats, and has the right to adjust the minimum requirement of a member based on the scale of the member and the type pf business it plans to engage in SGE as well as market conditions. A member must use its own capital to meet the minimum Settlement Reserve and shall maintain it on a daily basis. In addition, SGE maintains Risk Reserve to safeguard the smooth operation of the market, provide financial guarantees, and cover the losses from unforeseeable risks. The SGE Risk Reserve shall be deposited in a separate account and separately recorded in account books. So far, SGE has maintained a high-level Risk Reserve, with its scale reaching the ceiling.

Furthermore, SGE implements position limits. When the open interest exceeds 200 metric tons for a deferred gold contract or 5,000 metric tons for a deferred silver contract, the overall position limit applied for by any single member seat or customer shall not exceed a certain proportion of the open interest in the corresponding contract at the time of application. Said proportion shall be no more than 25% for a member's proprietary seat, no more than 25% for a corporate customer brokerage seat, no more than 35% for an individual customer brokerage seat of a commercial bank, no more than 25% for an individual customer brokerage seat of other types of members who are qualified to provide brokerage services to individuals, no more than 10% for a general corporate customer, and no more than 5% for an individual. By limiting position proportionally, SGE controls positions held by any single member or customer within a reasonable range to prevent systemic risk.

SGE does not conduct business in multiple jurisdictions. Trading Margin collected by SGE is adequate to cover its current and potential exposures to each member at the confidence level of no less than 99%. In extreme market conditions, SGE may mitigate risks by using the Settlement Reserve collected from a defaulting member and the Risk Reserve. Moreover, through stress testing, backtesting and other methods, SGE ensures that its financial resources are adequate to cover its credit risk.

Key consideration 4.5: A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily by 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 in order to ensure they are 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.

SGE uses standardized methods to set credit risk scenarios and market risk scenarios for stress testing. The stress scenarios include historical scenarios and theoretical scenarios. The historical scenarios are the real extreme market moves observed in history, while the theoretical scenarios are a variety of much more extreme scenarios which are set based on real historical scenarios by appropriately amplifying historical extreme volatility.

SGE's stress testing focuses on whether its total financial resources can cover losses from potential risks. The stress scenarios include peak historical price volatilities, Same Direction Limit-Locked Market, and other extreme scenarios involving the listed products and contracts, and some or all member seats or customers.

When the market displays high volatility, SGE conducts a stress testing on credit risk during and after trading hours and then, based on the results of such test, examines whether the liquidity of members or Custodian Banks meets requirements and submits the report to the Management. Through pre-clearing, SGE calculates members' margins, gains and losses and other capital items on a real-time basis to evaluate their credit risk exposures to SGE and assesses the sufficiency of its relevant financial resources, including members' Settlement Reserve, value of collaterals, value of physical inventories, Risk Reserve, other financial resources designated by SGE and the lines of credit from credit banks. Based on the calculation results, SGE primarily focuses on changes in the balance of fund, the positions and the price of contracts held by members who pose significant risk exposures to SGE and timely warns by telephone, requiring them to deposit additional margins in advance to eliminate the risks.

SGE verifies and evaluates its stress testing model by backtesting, and SGE's Trading Center adjusts the margin parameters and stress testing parameters according to the results of such verification, and increases the frequency of stress testing to reduce market risks.

Key consideration 4.6: In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

When conducting stress testing, SGE sets extreme credit risk scenarios and market risk scenarios to ensure that it maintains sufficient financial resources to cover a spectrum of forward-looking stress scenarios in extreme market conditions.

When setting the Trading Margin for each contract, SGE shall consider the peak historic price volatilities, price factors of such contract and a spectrum of predictable stress scenarios in a variety of extreme but plausible market conditions. Trading Margin requirements are set by SGE to cover potential risk exposures at the confidence level of no less than 99%.

SGE applies price limits to all existing price matching contracts. If the price limit hits, SGE shall conduct stress testing on potential risks per contract. The stress testing calculates the balance of members' fund in the event of three price limit hits to predict risk exposures and estimate margin requirement changes accordingly. When conducting stress testing, SGE calculates the margins, gains and losses and other capital items of members on a real-time basis through pre-clearing to evaluate the member's credit risk exposures. Based on the results of the calculation, SGE primarily focuses on changes in the balance of fund, the positions and the price of contracts held by members who pose significant risk exposures to SGE and has the right to warn by telephone, requiring them to deposit additional margins in advance to eliminate the risks.

Key consideration 4.7: 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.

SGE has formulated clear rules and procedures to cope with any potential credit losses and effectively allocate any potential uncovered credit losses, and set out the procedures to replenish financial resources during a stress event in the *Trading Rules of Shanghai Gold Exchange* and the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange.* If a member fails to fulfill its obligations, SGE shall have the power to:

- Suspend the member from opening new positions;
- Execute forced position liquidation by rules until the margin released therefrom is sufficient for contract performance and compensation;
- Dispose of the collaterals posted by the member as margin and apply the proceeds toward contract performance and compensation;
- Dispose of the member's pledged assets in accordance with the law;
- Dispose of the member's physical inventories in accordance with the law;
- Draw on other fund of the member such as its Membership Fee to fulfill contractual obligations and make compensations;
- Draw on the SGE Risk Reserve by rules;
- Draw on other financial resources designated by SGE by rules;
- Obtain the corresponding right of recourse or the right of claim against the member.

<u>Principle 5: Collateral</u>

Key consideration 5.1: An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

SGE has established strict standards for acceptable collateral and reviews them on a regular basis, which comply with the requirements of low credit risk, liquidity risk, and market risk.

Collateral accepted by SGE is used as margin. Pursuant to the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange* and the *Measures for the Administration of Margin Collateral Service of Shanghai Gold Exchange*, collateral refers to the inventories of gold, silver, and other precious metals in Certified Vaults, Foreign Currency, Marketable Securities, and other valuables approved by SGE. Currently, SGE only accepts physical gold inventories (i.e., Au99.99 and Au99.95) in Certified Vaults as collaterals.

In order to ensure that collateral accepted by SGE has the lowest credit risk, liquidity risk, and market risk, SGE manages the collateral by daily recalculating the collateralization quota, setting a prudent haircut and a maximum matching ratio, and monitoring credit risk events in the market. SGE may adjust the maximum matching ratio based on market risk and the creditworthiness of the collateral owner. The maximum matching value of a collateral shall not exceed 4 times ("the maximum matching ratio") the amount of available currency fund in the margin account of a member seat. When a member defaults, SGE has the right to immediately dispose of the member's collateral to cover the default losses.

Key consideration 5.2: An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

The *Measures for the Administration of Margin Collateral Service of Shanghai Gold Exchange* contains detailed provisions on the valuation method of collateral, and establishes prudent valuation practices and haircuts which are regularly tested by SGE based on market conditions.

SGE has set prudent haircut for collateral based on historical price fluctuation, market liquidity, risk and other factors. The haircut shall be no less than 10% for physical gold inventories and no less than 5% for non-inventory collaterals. Currently, SGE sets a 20% haircut for physical gold inventories. SGE accepts physical gold inventories as margin and sets the haircut covering the price limits for deferred contracts and basically offsetting the price fluctuation risk. SGE has the right to adjust haircut as well. Moreover, SGE recalculates the collateralization quota of a member during daily settlement based on the daily base price of the collateral and the member's available currency fund.

Considering stressed market conditions, SGE shall have the right to cancel a member or customer's collateralization if a major risk occurring in the use of fund by the member or customer may endanger SGE's legitimate rights and interests, a major market risk arising during the term of collateralization may endanger SGE's legitimate rights and interests, or there is any other reason that warrants the termination of the collateralization.

Key consideration 5.3: In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

SGE has fully considered procyclicality and set sufficiently prudent haircut as a risk buffer to cover various market conditions and remain stable.

SGE's stable haircut can reduce procyclical impact, which will not exert pressure on the further decline of assets' price and not require the posting of additional collaterals, particularly in periods of stressed market conditions. The prudent haircut reflects its practical and prudent attitude towards risk management and fully takes into account the depreciation possibility of collateral in periods of stressed market conditions. SGE tests the suitability of the haircuts on an ongoing basis and adjusts them if necessary. The haircuts are disclosed on SGE's website.

Key consideration 5.4: An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

SGE accepts collaterals that can be disposed within a short time or can be processed in time and regularly examines the concentrated holding of the collaterals. Besides, SGE regularly analyzes and evaluates the liquidity of the collaterals, haircuts coverage, market transactions, and other factors.

The maximum matching ratio of collateral is determined by SGE based on the liquidity and risk of collateral and may be adjusted by SGE based on market risk and the creditworthiness of the collateral owner. Furthermore, to manage concentration risk arising from the excessive holdings of a single collateral and ensure the quick disposal of collateral, the core system of SGE is equipped with function to manage relevant risks for collaterals as per seat and per collateral. At present, the collateral accepted by SGE is physical gold inventories which account for a small proportion of margins. Therefore, SGE shall not be adversely impacted by quick liquidation of collateral.

Key consideration 5.5: An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

SGE does not accept cross-border collateral at present.

Key consideration 5.6: An FMI should use a collateral management system that is well-designed and operationally flexible.

SGE has independently developed a well-designed and operationally flexible core system that has collateral management functions, including collateralization processing, term management, valuation on a mark-to-market basis, risk management and other functions. SGE adopts a "one account, one code" system for physical delivery. Each member or customer gets a Bullion Account code after opening an account with SGE. All delivery activities of a member or customer are performed through and reflected in its Bullion Account. Furthermore, the core system of SGE can identify the physical inventories held by each member or customer based on the corresponding Bullion Account code, and freeze a member or a customer's physical inventories as margin to prevent repeated calculation.

During day-end settlement, SGE recalculates the collateralization quota of a member based on the base price of the collateral and member's available currency fund and issues a margin call to any member whose Settlement Reserve is below the required minimum balance after the recalculation.

Members can apply for collateralization conveniently and quickly via the Member Service Platform during the continuous trading hours of each trading day and track the progress of such applications on a real-time basis.

Principle 6: Margin

Key consideration 6.1: A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.

The general framework for SGE's margin system is composed of the *Trading Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Risk Control of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, and other applicable rules of SGE. SGE determines relevant parameters, calculation methods, Fund Deposit and Withdrawal procedures, amount of margin maintained per seat, and other items in accordance with rules governing the CCP clearing services.

SGE enforces margin requirements. Margins, segregated into Settlement Reserve and Trading Margin, are used to settle trades and guarantee contract performance. Settlement Reserve refers to the fund maintained by a member under the SGE Settlement Account for settling future trades, which is not yet used by existing open positions of the member. SGE requires members to maintain a minimum Settlement Reserve balance based on the type of their seats, and may adjust the minimum requirement of a member based on market conditions as well as the scale of the member and the type of business it plans to engage in. A member must use its own capital to meet the minimum Settlement Reserve and shall maintain it on a daily basis. Trading Margin refers to the fund maintained by a member under the SGE Settlement Account to guarantee the performance of trades, which is already in use to maintain existing open positions of the member. SGE shall collect Trading Margin on both long positions and short positions in proportion to the value of contracts held or according to other methods provided by SGE. Notwithstanding the foregoing, SGE may collect the higher of the Trading Margin for long positions and that for short positions with respect to the following circumstances: (1) the long and short positions in deferred contracts of the same product held by a customer through the same member seat; or (2) any other circumstance as deemed necessary by SGE.

The *Measures for the Administration of Risk Control of Shanghai Gold Exchange* has explicitly provided SGE's margin requirements and their adjustment methods. SGE may adjust Trading Margin rate for the contract depending on the size of open interest, adjust Trading Margin rate according to provisions of price limits in a Limit-Locked Market for consecutive trading days, and adjust Trading Margin rate in view of overall market conditions.

Margin levels, models and parameters of SGE have fully considered the characteristics of each product and the market it serves when being designed and can cover the risks of the existing products at the confidence level of no less than 99%. The margin level for the existing products can cover at least one price limit. SGE verifies the levels, models and parameters of margin through stress testing and backtesting to ensure that they match with the attributes of products and market. The credit risk exposures of the CCP clearing services provided by SGE depend on the market price fluctuation, position changes and market liquidity changes. For example, SGE has considered the attributes, historical price fluctuations and historical scenarios of products when setting the margin level.

If a member fails to timely deposit margin committing a default, SGE may dispose the default in accordance with applicable rules (see Principle 13).

Key consideration 6.2: A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.

All price data on contract used in SGE's margin models, including execution price, closing price, settlement price, and other prices, is from its own system. The data source is reliable and timely available, and includes no external data. There are no circumstances in which reliable pricing data are not available.

The *Detailed Rules for Price Matching Trading of Shanghai Gold Exchange* sets out detailed provisions and calculation methods for newly listed contracts, inactive contracts, and contracts without a daily execution price.

External data from the spot market and other international markets, including relevant macroeconomic data, production and consumption data published by the National Bureau of Statistics, China Gold Association, World Gold Council, and other organizations, and data of fluctuations in price of gold and silver from Chicago Mercantile Exchange (CME) and London Bullion Market Association (LBMA), is used only for supplementary reference with limited impact.

Key consideration 6.3: A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the 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.

The margin models of SGE have considered a series of factors and are designed in the principle of fully protecting members and CCP, and preventing the systemic risk of the involved markets.

Design of the models:

The minimum margin for each product of SGE can cover potential risk exposures at the confidence level of no less than 99%. By setting relatively stable and sufficient observations in stress scenarios, price volatility factor, position limits and other model parameters, SGE ensures that the margin models are stable, prudent and insusceptible to market changes, thus effectively limiting the need for destabilizing and procyclical changes. SGE selects the historical price data-based EWMA model to set margin levels at the confidence level of no less than 99% with decay factors. Meanwhile, the margin levels are required to cover risk exposures for at least one day.

Key parameters and input of the models:

For the EWMA model, based on historical product price data, SGE sets margin levels which can cover risk exposures of at least one day at the confidence level of no less than 99%.

SGE regularly verifies the validity of the margin model and parameters through backtesting. SGE ensures adequate coverage of margin achieved by monitoring on price fluctuations of all products each day and comparing them with the current margin levels, and adjusting the parameters based on the test results. In addition, SGE conducts stress testing and calibrates the parameters of the margin models and reviews the results on a regular basis. The historical market volatility parameter is monitored by quantitative methods and relevant models to ensure that the observed market movements are suitable variables used for setting margin levels.

Assumptions for the models:

SGE's margin models establish margin levels in accordance with the efficient market hypothesis, and reliable historical data as well as product characteristics. The *Trading Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Risk Control of Shanghai Gold Exchange*, and others rules of SGE specify the timeline for liquidation of positions and set different position limits for different products. Positions subject to forced liquidation shall first be liquidated by the member within two hours after market opens, unless otherwise instructed by SGE. SGE shall have the right to liquidate the positions that were not liquidated by members within specified time frame. If liquidation is not completed within the specified time frame due to price limits or other market factors, as required by the *Measures for the Administration of Risk Control of Shanghai Gold Exchange,* the remaining positions shall be liquidated on the following trading day until liquidation is completed.

Sampling period and its determinants for historical data:

For newly listed contracts, the sampling periods are selected based on the price volatility of the underlying assets by taking into consideration such factors as market size, attributes, and market supply and demand.

For existing contracts, the sampling periods require historical data for at least five years and shall cover the most volatile periods.

The destabilizing effect of procyclical changes:

SGE can avoid the destabilizing effect of procyclical changes by requiring members to deposit margin before opening positions, imposing margin at a fixed rate, setting a high margin level and maintaining low frequency of margin level adjustment.

Identification and mitigation of specific adverse selection:

SGE only accepts collateral of physical gold inventories as margin. In order to ensure that collateral accepted by SGE has the lowest credit, liquidity and market risk, SGE manages such collateral by taking such measures as daily recalculating the collateralization quota, setting prudent haircut and maximum matching ratio, and monitoring credit risk events in the market. Collaterals other than cash and physical gold inventories are not accepted by SGE as margin. Therefore, SGE is not exposed to issuers' credit risks or adverse selection.

Key consideration 6.4: A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.

SGE collects Trading Margin in proportion to contract value and implements daily mark-to-market. Pursuant to the *Measures for the Administration of Risk Control of Shanghai Gold Exchange,* SGE may adjust margin levels based on the size of open interest or price limits. Margin requirement may also be adjusted in the case of a Limit-Locked Market for consecutive trading days, public holidays, or any other special circumstance as SGE deems necessary.

SGE can identify and measure its credit exposures through real-time monitoring and intraday pre-clearing, and calculate the margins, gains and losses, and other capital items of members in real time to evaluate members' credit risk exposures. SGE has the right to give a warning by telephone to any member who poses large risk exposures to SGE and require them to deposit additional margins in advance to eliminate the risks.

SGE sets out margin models and settlement time in relevant rules. On each trading day, SGE calculates the Trading Margin and Settlement Reserve based on the settlement price and margin level. At the day-end settlement, SGE calculates gains and losses on contracts at the current-day settlement price, collects Trading Margin according to the margin level, and increases or decreases the member's Settlement Reserve respectively. If a member's Settlement Reserve falls below the required minimum balance, SGE calculates it and issues a margin call to the member. If the member fails to deposit margins within the specified time limit, SGE may take risk control measures as suspending the opening of new positions or enforcing liquidation of open positions.

Key consideration 6.5: In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.

After a trade is executed, SGE collects Trading Margin on both long positions and short positions in proportion to the value of contracts held or according to other methods provided by SGE. SGE may collect the higher of the Trading Margin for long positions and that for short positions with respect to the following circumstances: the long and short positions in deferred contracts of the same product held by a customer through the same member seat, or any other circumstance as deemed necessary by SGE.

SGE neither clears products with other CCPs, nor implements cross-margining.

Key consideration 6.6: 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.

SGE regularly conducts backtesting and sensitivity analysis to validate margin models by using current market data in historical and theoretical extreme scenarios to ensure that the margin models are sufficient to cover price volatility over different historical periods. SGE's backtesting on its businesses verify the validity of margin models and parameters based on historical risk exposures and market curve fluctuations.

SGE regularly assesses the backtesting results to timely adjust the margin models and parameters. If the margin model fails the test, SGE analyzes reasons, assesses and determines model parameters and particularly makes appropriate adjustments to the setting of extreme values to adapt to the current market conditions. SGE conducts sensitivity analysis for each business, and selects fluctuation scenarios corresponding to each parameter in the margin model of such business. During the sensitivity analysis of the margin model, SGE calculates the upward or downward fluctuation of each element in the model and evaluates its impact on the coverage adequacy of the margin model.

Key consideration 6.7: A CCP should regularly review and validate its margin system.

SGE regularly evaluates and verifies the margin models, analyzes and examines the validity of the models and parameters, and submits the results to the Management for deliberation. If any change is made to the existing margin models or any new margin model is adopted, SGE will increase the frequency of evaluation on the models to validate the models, and examine the results of backtesting and all parameters of the models.

When making updates (or revisions) to rules related to margin requirements, SGE conducts a survey on market participants such as members and customers , invites experts from law firms, judicial authorities, and other institutions to discuss and assess the legal issues involved, organizes discussion meetings with market participants to solicit their comments on the legal documents, and convenes the Members' Assembly to vote on such updates (or revisions) and explain and communicate relevant legal arrangements for business. Before promulgating and implementing such rules, SGE submits updates (or revisions) to the PBC for approval or for record in accordance with regulatory requirements. Meanwhile, SGE discloses adjustments of relevant rules on its website.

Principle 7: Liquidity risk

Key consideration 7.1: An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

SGE has established a robust framework to manage liquidity risk from all relevant market participants. Market participants posing liquidity risk to SGE's existing businesses include members and Custodian Banks. The major potential sources of liquidity risk faced by SGE include: (1) short-term liquidity shortfall caused by members' defaults; (2) insufficiency of available fund balance at Custodian Banks for Settlement Account Withdrawals; (3) the failure to quickly liquidate collaterals; and (4) Credit banks' failure to timely provide sufficient credit support to SGE.

For the management of liquidity risk from members, SGE takes a wide range of measures such as pre-trade risk control, liquidity testing, liquidity monitoring and warning, daily mark-to-market, and Custodian Banks credit support, to ensure that liquidity resources can cover settlement needs for a single day or consecutive days and to manage and effectively address liquidity risks. The pre-trade risk control includes that: (1) SGE enforces margin requirements. Margins (i.e., Trading Margin and Settlement Reserve) are deposited at Custodian Banks before each trade to control risks. Margins collected by SGE are sufficient to cover price limits or delivery default penalties for at least one day; SGE makes adjustments to the level of Trading Margin in view of market risks when: open interest in a contract has reached a certain threshold; a price limit is hit; relevant contract is approaching its delivery date; the cumulative price change of a contract over several consecutive trading days has reached a prescribed threshold; the cumulative increase in open interest in a contract over several consecutive trading days has reached a prescribed threshold; the market liquidity is projected to change; or there is any significant change in market risks. Moreover, SGE mainly accepts cash as margin, and collaterals accepted as margin only include highly liquid physical gold inventories. (2) SGE implements price limits, position limits, and trading limits. Therefore, the scale of members' defaults in extreme scenarios is limited effectively.

For the management of liquidity risk from Custodian Banks, SGE takes a range of measures, such as strict admission standards, regular assessments, liquidity monitoring and warning, Custodian Bank balance mechanism, and fund transfer to prevent liquidity shortage. Furthermore, the *Measures for the Administration of Margin Custodian Banks of Shanghai Gold Exchange* provides that SGE requires Custodian Banks to assist in mitigating liquidity risk. SGE has entered into Credit Agreements with multiple Custodian Banks to minimize the liquidity risk arising from member's Settlement Account Withdrawals, and to ensure that SGE has adequate liquidity resources to fulfill payment obligations. Moreover, SGE is a privileged participant of the PBC's HVPS and opens a concentration account to hold members' Trading Margin to effectively reduce credit risk from Custodian Banks.

Key consideration 7.2: An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

SGE relies on its own core system to identify, measure, and monitor gains and losses as well as funding flows in real time within liquidity risk management framework, and sustains a series of liquidity support measures.

SGE monitors and measures gains and losses ratio, short-term market price volatility, cumulative price change, Settlement Reserve balance (including real-time gains and losses), utilization rate of fund, large-amount Settlement Account Deposits and Withdrawals, frequency of Settlement Account Deposits and Withdrawals and other indicators on each day, and timely contacts members with high levels of exposure to deposit fund during the day to reduce liquidity risk. Furthermore, SGE requires any member whose Settlement Reserve is below the required minimum balance to deposit additional margins to ensure the sufficiency of liquidity resources.

SGE can monitor the physical inventories under the members' and customers' Bullion Account on a real-time basis.

Key consideration 7.4: 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.

SGE mainly holds the liquidity resources in RMB, and carries out CCP clearing services under Chinese laws.

SGE monitors the intraday liquidity, improves liquid resources by issuing margin calls, and conducts liquidity tests to ensure the sufficiency of liquid resources. SGE's qualifying liquid resources include defaulting members' Trading Margin, Settlement Reserve, open positions, collaterals accepted as margin, physical inventories and Risk Reserve. SGE's liquidity risk management is prudent enough to prevent various potential liquidity shortfalls.

Firstly, SGE takes pre-trade risk control measures, including that:

SGE enforces margin requirements. Margins (i.e., Trading Margin and Settlement Reserve) are deposited in Custodian Banks before trading, and Trading Margin should cover price limits or delivery default penalties for at least one day.

SGE makes adjustments to the level of Trading Margin in view of market risk when:

- Open interest in a contract has reached a certain threshold;
- A price limit is hit;
- Relevant contract is approaching its delivery date;
- The cumulative price change of a contract over several consecutive trading days has reached a prescribed threshold;
- The cumulative increase in open interest in a contract over several consecutive trading days has reached a prescribed threshold;

- The market liquidity is projected to change;
- There is any significant change in market risks.

SGE implements price limits, position limits, and trading limits. Therefore, the scale of members' default in extreme scenarios is limited. SGE mainly accepts cash as margin, and other collaterals accepted as margin only include highly liquid physical gold inventories.

Secondly, SGE performs liquidity tests to estimate the scale of liquidity risk exposures and ensure that it can meet other payment obligations on time in potential stressed scenarios. Specifically, on daily basis, SGE identifies and measures credit exposures through real-time monitoring and intraday pre-clearing, calculates Trading Margin, gains and losses, and other capital items of members in real time, evaluates credit risk exposures to members, and assesses the sufficiency of financial resources required to cover the defaults of the two members that would generate the largest aggregate payment obligation to SGE in extreme but plausible market conditions. The financial resources include members' Settlement Reserve, value of collaterals accepted as margin, value of physical inventories, SGE's Risk Reserve and other financial resources designated by SGE, as well as lines of credit from Custodian Banks. Based on the results of calculation, SGE primarily focuses on changes in the balance of fund and positions, and price change of contracts held by members who pose significant risk exposures to SGE and timely warns by telephone to require them to deposit additional margins in advance to eliminate the risks. Further, SGE reports to the Management once the financial resources may be used.

Lastly, SGE only selects state-owned commercial banks or joint-stock commercial banks as Custodian Banks and takes a range of measures, such as strict admission standards, regular assessments, liquidity monitoring and warning, Custodian Bank balance mechanism, fund transfer, credit extension from Custodian Banks to prevent liquidity shortage. These Custodian Banks are also SGE's members and are under the full supervision and management in accordance with SGE rules. Furthermore, the *Measures for the Administration of Margin Custodian Banks of Shanghai Gold Exchange* provides that SGE requires Custodian Banks to assist in mitigating liquidity risk. SGE has entered into Credit Agreements with multiple Custodian Banks to minimize the liquidity risk arising from member's Settlement Account Withdrawals and ensure that SGE has adequate liquidity to fulfill payment obligations.

Key consideration 7.5: 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.

SGE's qualifying liquid resources include defaulting members' Trading Margin, Settlement Reserve, open positions, collaterals accepted as margin, physical inventories, and SGE's Risk Reserve. All these resources are available when needed.

Margins (i.e., Trading Margin and Settlement Reserve) are deposited in cash in advance at Custodian Banks. Defaulting member's positions may be forcedly liquidated by rules until margin released therefrom is sufficient for contract performance and compensation. All collaterals accepted as margin are highly marketable and liquid. The other fund of the defaulting member can be applied to cover the performance and compensation. SGE's Risk Reserve shall be deposited in a separate account and separately recorded in account books. Its use shall follow the prescribed procedures for the specified purposes, and shall be reported to the PBC for record. In addition, SGE conducts settlement in RMB only and is not exposed to complex risks related to multiple jurisdictions.

Key consideration 7.6: 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.

SGE's supplementary liquid resources are lines of credit from Custodian Banks.

SGE has signed Unsecured Credit Agreements with Custodian Banks pursuant to the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Margin Custodian Banks of Shanghai Gold Exchange*, and the *Evaluation Indicator System for Margin Custodian Banks of Shanghai Gold Exchange*. When available fund in SGE Settlement Account are insufficient to complete payment and settlement obligations in extreme market conditions, SGE could automatically and timely use the lines of credit from Custodian Banks by obtaining fund within the approved overdraft quota to fulfill payment and settlement obligations towards non-defaulting members, with the resulting fees and losses borne by defaulting members. After performing relevant obligations on behalf of the defaulting members, SGE shall obtain the corresponding right of recourse or the right of claim against the member in order to pay off the line of credit. SGE has carried out emergency drills with the Custodian Banks for many times. In addition, SGE is a privileged participant of the PBC's HVPS and opens a concentration account to obtain the account and payment services of the central bank. In extreme market conditions, Custodian Banks can also provide liquidity support to SGE through their reserve accounts at the PBC.

Custodian Banks are both SGE's liquidity providers and members. In extreme market conditions, if several Custodian Banks default as liquidity providers, SGE may timely obtain the required liquid resources by choosing other Custodian Banks.

SGE prioritizes the use of its qualifying liquid resources which are sufficient enough to meet the liquidity needs in extremely stressed market conditions and has never used its supplementary liquid resources.

Key consideration 7.7: An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.

SGE does not rely on specific liquidity provider to meet the minimum requirement of liquid resources. SGE collects margins, physical inventories, collaterals from members to satisfy required minimum qualifying liquid resources. These resources include:

- Margins (i.e., Trading Margin and Settlement Reserve), which are deposited in cash maintained in advance at Custodian Banks. Defaulting member's positions may be forcedly liquidated by rules until margin released therefrom is sufficient for contract performance and compensation.
- All collaterals accepted as margin, which are highly marketable and liquid.
- Other fees of a defaulting members.
- The SGE Risk Reserve.

SGE has the capacity to obtain sufficient liquidity support, forecast and prevent potential liquidity shortfall through liquidity tests.

Credit banks are both supplementary liquidity providers and members of SGE. SGE takes a range of measures, such as strict admission standards, regular assessments, liquidity monitoring and warning, Custodian Bank balance mechanism, fund transfer, and credit extension from Custodian Banks, to ensure that it has enough information to understand and manage liquidity risks associated with Custodian Banks. If extreme scenarios occur, SGE can timely initiate liquidity arrangements. Moreover, SGE fully monitors and manages risks from these Custodian Banks in accordance with rules regarding the management of members.

Key consideration 7.8: An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

SGE is a privileged participant of the PBC's HVPS and opens a concentration account to obtain the account and payment services of the central bank. In extreme market conditions, Credit banks can provide SGE with liquidity support through their reserve accounts at PBC.

Key considerations 7.9: An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, 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.

SGE conducts CCP clearing services only in RMB. SGE's liquidity risk management ensures that it has adequate liquid resources denominated in a single currency to cover liquidity needs arising from potential defaults of members or insufficient balance in Settlement Account at Custodian Banks during its clearing services at any time.

For the management of the liquidity risk from members, SGE conducts credit risk stress testing during or after trading hours at first, then based on testing results checks whether the liquidity of members or Custodian Banks meets requirements upon the occurrence of a Limit-Locked Market for consecutive days or any other major market risk. When conducting stress testing aforementioned, SGE assumes that lines of credit and settlement facilities provided by defaulting members should be deducted from its liquid resources. Moreover, by its core system's pre-clearing, SGE calculates the margins, gains and losses and other capital items of members on a real-time basis to evaluate its credit risk exposures to the members. Based on the results of calculation, SGE primarily focuses on changes in the balance of fund and positions, as well as the price change of contracts held by members who pose significant risk exposures to SGE. Further, SGE has the right to give a warning by telephone to those members, and to require them to deposit additional margins in advance to eliminate the risks.

For the management of the liquidity risk from Custodian Banks, SGE only selects commercial banks with high creditworthiness as Custodian Banks and takes a range of measures, such as strict admission standards, regular assessments, liquidity monitoring and warning, Custodian Bank balance mechanism, fund transfer, and credit extension from Custodian Banks to prevent liquidity shortage. At the day-end settlement, SGE inspects and rebalances the liquidity of Custodian Banks through the Custodian Bank balance mechanism. If SGE detects by its real-time monitoring that the fund balance of a Custodian Bank is or is likely to be insufficient, SGE transfers fund from other Custodian Banks with sufficient liquidity to quickly meet its payment needs.

Key considerations 7.10: An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

SGE manages liquidity risks by taking measures as pre-trade risk control, liquidity testing, liquidity monitoring and warning, daily mark-to-market, and credit extension from Custodian Banks. Besides, SGE's relevant rules and business procedures give explicit provisions on the default management of members to ensure that SGE's liquid resources can cover risks in accordance with the established business procedures to complete settlement obligations.

SGE has sufficient liquid resources to cover the aggregate single-day and multiday payment obligations arising from default by any individual or multiple members, and fulfill payment and settlement obligations on time. In case of default by any individual or multiple members, SGE has the right to take the following actions by suspending the member from opening new positions, executing forced position liquidation by rules until the margin released therefrom is sufficient for contract performance and compensation, disposing of the collaterals posted by the member as margin and applying the proceeds toward contract performance and compensation, disposing of the member's pledged assets in accordance with the law, disposing of the member's physical inventories in accordance with the law, drawing on other fund of the member such as its Membership Fee to fulfill contractual obligations and make compensations, drawing on the SGE Risk Reserve by rules, and /or drawing on other financial resources designated by SGE. Upon drawing on the SGE Risk Reserve, SGE shall obtain the corresponding right of recourse or the right of claim against the member.

Furthermore, SGE has multiple Custodian Banks as its liquidity providers to ensure that, in extreme market conditions, it can obtain the required liquid resources from them to address unforeseeable risks and fulfill payment and settlement obligations on time.

Principle 8: Settlement finality

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

SGE has developed the *Trading Rules of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, and other rules in accordance with laws, judicial interpretations, ministry-level regulations, and other applicable rules and has submitted them to the PBC for approval or for record. These rules contain explicit provisions on settlement finality. SGE handles business activities of members' Settlement Account Deposits and Withdrawals, deposit of additional margins, and day-end settlement in compliance with such provisions. SGE completes all fund settlement procedures before the end of each trading day, and the settlement is deemed final and irrevocable upon completion.

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

SGE's business rules can ensure final settlement is completed before the end of each trading day. Specifically, SGE processes Settlement Account Deposit from 9:00 to before day-end settlement on each trading day. After the relevant Custodian Bank confirms that the fund transferred by a member have been credited into the SGE Settlement Account, SGE increases the member's Settlement Reserve accordingly and it is deemed final once completed. SGE processes Settlement Account Withdrawals from 9:00 to 15:30 on each trading day. SGE performs fund transfers according to the instructions of members, which is final once completed.

In accordance with trading results, SGE clears the delivery payments, margins, gains and losses, transaction fees, and other payables and receivables of members as well as the bullion deliverable and receivable for members and customers. Upon completion of clearing, SGE organizes settlement based on the clearing results by debiting the fund payable and bullion deliverable of members and customers from their accounts and crediting the fund and bullion receivable to relevant accounts, and, based on the results of netting, completes fund transfers through the PBC's HVPS. Settlement results cannot be reversed once the process is completed. Up to now, SGE's settlement has never been delayed.

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

As stated above, SGE has clearly defined the point for each section of the settlement procedures. Settlement instructions of Settlement Account Withdrawals and Deposits, and payment and receipt of margins upon day-end settlement are irrevocable once completed. Specifically, a participant cannot revoke a settlement instruction given by SGE and a settlement instruction given by a participant cannot be revoked either once executed. Furthermore, the *Provisions on the Banking Financial Institutions' Assistance in Inquiry and Freeze by the People's Procuratorates, Public Security Authorities and State Security Authorities*, the *Measures for the Business Processing of the High-Value Payment System*, and the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, as well as laws, ministry-level regulations, and normative legal documents give explicit provisions on settlement finality (see Principle 1).

Principle 9: Money settlements

Key consideration 9.1: An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

SGE is a privileged participant of the PBC's HVPS and opens a concentration account to hold Trading Margin. SGE opens Settlement Accounts (hereinafter refers to as SGE Settlement Accounts) at Custodian Banks as well to hold members' Settlement Reserve and other relevant payment.

Each member must select a Custodian Bank to open a dedicated Settlement Account for each trading seat to hold its or its customers' margins and relevant payments. Fund for proprietary trades and brokerage trades shall not be commingled. Fund transfers between SGE and members shall be affected through the SGE Settlement Account and the members' Settlement Account. Fund deposited into the SGE Settlement Account by members shall be accounted for separately by SGE. SGE shall establish a subsidiary account for every seat of each member, and shall daily record and verify in chronological order such entries as inbound and outbound fund transfers, gains and losses, Trading Margin, and transaction fees for each seat.

In accordance with trading results, SGE clears the delivery payments, margins, gains and losses, transaction fees, and other payables and receivables of members as well as the bullion deliverable and receivable for members and customers. Upon completion of clearing, SGE organizes settlement based on the clearing results by debiting the fund payable and bullion deliverable of members and customers from their accounts and crediting the fund and bullion receivable to relevant accounts, and, based on the results of netting, completes fund transfers through the PBC's HVPS. Settlement results cannot be reversed once the process is completed.

Key consideration 9.2: If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

As mentioned above, SGE conducts its money settlements through account system consisting of the concentration account, SGE Settlement Accounts and members' Settlement Accounts. The transfer of fund between SGE Settlement Accounts and members' Settlement Accounts is completed through the systems of commercial banks, and the member's Settlement Reserve is deposited into its account at the commercial bank.

SGE has selected 18 commercial banks with high credit rating as Custodian Banks, including, among others, Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, and Bank of Communications. All Custodian Banks designated by SGE are direct participants of the PBC's HVPS and under the supervision of state regulatory authorities. SGE has established strict management and assessment systems to monitor, manage and limit its credit risk and liquidity risk arising from Custodian Banks.

Key consideration 9.3: If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalization, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and

liquidity exposures to its commercial settlement banks.

The *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Margin Custodian Banks of Shanghai Gold Exchange* and other rules of SGE set out clear criteria for the selection, assessment and daily monitoring of Custodian Banks.

SGE has prudently selected 18 commercial banks meeting its business needs as Custodian Banks, based on the size of assets, creditworthiness, access to liquidity, level of systematic importance, level of internal control, technical support capability, and other factors.

Each year, based on business operations, SGE assesses and manages these Custodian Banks and conducts a comprehensive assessment on their compliance, business capacity, service quality and technical competence with respect to their margin custody business, as well as guides and supervises them in their margin custody business. If a Custodian Bank fails to perform its corresponding obligations, SGE may request it to make rectifications, and take such actions as issuing a warning, issuing a censure, requiring relevant members to conduct business with a new Custodian Bank, suspending the provision of margin custody service to a new member or revoking the qualification of the Custodian Bank depending on the severity level of the circumstances.

SGE monitors and manages the credit risk, liquidity risk and the risk exposures to Custodian Banks by taking such measures as the real-time monitoring of the fund balance in Settlement Accounts, the real-time processing of Settlement Account Deposit and Withdrawal instructions from members, monitoring and early warning of liquidity, Custodian Bank balance mechanism, fund transfer and batch reconciliation.

Key consideration 9.4: If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

Fund deposited into the SGE Settlement Account by members are accounted for separately by SGE through its internal journal account in the core system. SGE establishes a subsidiary account for every seat of each member, and daily records and verifies in chronological order such entries as inbound and outbound fund transfers, gains and losses, Trading Margin, and transaction fees for each seat. In accordance with trading results, SGE clears the delivery payments, margins, gains and losses, transaction fees, and other payables and receivables of members as well as the bullion deliverable and receivable for members and customers. Upon completion of clearing, SGE organizes settlement based on the clearing results by debiting the fund payable and bullion deliverable of members and customers from their accounts and crediting the fund and bullion receivable to relevant accounts, and, based on the results of netting, completes fund transfers through the PBC's HVPS. Settlement results cannot be reversed once the process is completed.

SGE deposits members' Trading Margin into the concentration account and safely deposits members' Settlement Reserve into the SGE Settlement Account, which can effectively prevent credit risk and liquidity risk.

Key consideration 9.5: 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.

The core system of SGE has realized straight-through processing with the PBC's HVPS and systems of Custodian Banks to ensure that settlement instructions such as Settlement Account Deposits and Withdrawals or payment and receipt of margins upon day-end settlement can be timely completed.

The *Trading Rules of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange* and other business rules of SGE explicitly stipulate settlement finality. Both SGE and its members open Settlement Account(s) at Custodian Banks. A member's Fund Deposit and Withdrawal are completed through fund transfer between the SGE Settlement Account and the member's Settlement Account opened at the same Custodian Bank. SGE processes Fund Deposit from 9:00 to before day-end settlement on each trading day. After the relevant Custodian Bank confirms that the fund transferred by a member have been credited into the SGE Settlement Account, SGE increases that member's Settlement Reserve accordingly and it is deemed final once completed. SGE processes Fund Withdrawal from 9:00 to 15:30 each trading day, and transfers fund into a member's Settlement Account according to the instructions of members. Transactions are final once completed.

To enable Custodian Banks to provide safe, accurate and timely margin custody services and mitigate liquidity risk possibly arising from Fund Deposit and Withdrawal, SGE requires Custodian Banks processing members' Settlement Account Deposits and Withdrawals as follows:

- Adjust their business hours according to the trading and settlement hours of SGE to ensure the availability of the margin custody service;
- For intra-bank fund transfers, the Custodian Bank shall guarantee that it will transfer the fund to the member's Settlement Account designated by SGE immediately upon receiving the transfer instruction from SGE;

- For inter-bank fund transfers, the Custodian Bank shall guarantee that it will transfer the fund through the most expeditious method into the bank account of the payee designated by SGE immediately upon receiving the transfer instruction from SGE;
- Refuse any application by any other entity or individual to freeze or transfer the fund within the SGE Settlement Account; if any other entity intends to implement such a freeze or any other measure which may affect the margin custody service, a Custodian Bank shall promptly notify SGE;
- Strictly comply with the supervisory requirements of SGE and take effective measures to prevent liquidity risks, and without the written consent of SGE, shall not restrict Settlement Account Deposits or Settlement Account Withdrawals by members.

Principle 10: Physical deliveries

Key consideration 10.1: An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

Physical delivery refers to the act of performing a trade by transferring the ownership of the bullion traded in accordance with the rules and procedures of SGE. The *Trading Rules of Shanghai Gold Exchang*e, the *Detailed Delivery Rules of Shanghai Gold Exchange* and the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange* and other rules of SGE include detailed provisions on physical delivery obligations, specifying the types of deliverable bullion and the obligations and responsibilities of SGE, buyers, sellers and Certified Vaults.

SGE opens Bullion Accounts for its members and customers and offers them a wide range of services relating to bullion, including custody, delivery, assay and certification, and shipment and logistics, etc. For any trade in physical contract, physical delivery shall take place at the time of trade execution, and the delivery quantity is the volume of bullion purchased or sold in the trade. For any trade in spot contract, with T+0 denoting the date of trade execution, physical delivery shall take place during day-end settlement on T+2, and the delivery quantity of bullion is the net trading quantity purchased and sold by each trading party on T+0. For any trade in deferred contract, physical delivery for a trading party shall take place during day-end settlement on the day it tenders for delivery, the delivery quantity shall be based on the volume tendered and matched for delivery and the volume tendered and matched for Delivery Equalizer. For any trade in benchmark price contract, with T+0 denoting the date of trade execution, physical delivery shall take place during day-end settlement on T+2, and the delivery quantity of bullion is the net trading quantity purchased and sold by each trading party on T+0. Members and customers shall ensure that there is sufficient fund in their Cash Account and sufficient bullion in their Bullion Account at the time of settlement. If physical delivery fails due to insufficient fund or bullion in the Cash Account or Bullion Account, SGE shall be entitled to recognize the member or customer as having committed a default.

SGE's relevant rules are disclosed to the public on its website. SGE regularly organizes various types of member training and investor education activities to ensure that members and customers are familiar with physical delivery rules and procedures.

Key consideration 10.2: An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

Risks associated with physical delivery through SGE mainly include delivery default risks, quality risks, storage risks and transportation risks.

Delivery default risks. SGE tracks and monitors a seller's Bullion Account and buyer's Cash Account before the day of delivery and reduces delivery default risks by collecting Delivery Margin. In addition, pursuant to *Trading Rules of Shanghai Gold Exchang*e, *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange* and *Detailed Delivery Rules of Shanghai Gold Exchange,* if physical delivery fails due to insufficient fund or bullion in the Cash Account or the Bullion Account of a member or a customer, SGE shall be entitled to recognize the member or customer as having committed a default. In the event of a physical delivery default, SGE shall pay compensation to the non-defaulting party and collect default penalty from the defaulting party, and then terminate the delivery process (see Principle 13).

Quality risks. SGE has formulated comprehensive, effective and sound quality management mechanism. Firstly, SGE has established an authoritative and reliable quality standard system. Any gold ingot or gold bar deliverable through SGE shall be either a bullion produced in compliance with the prevailing *SGE Standard for Gold Ingot* or *SGE Standard for Gold Bar*, respectively, by an SGE Standard Gold Ingot Refiner or SGE Standard Gold Bar Refiner, or a standard bullion produced by a qualified supplier accredited by a relevant SGE-recognized international market. Any platinum ingot deliverable through SGE shall be a standard bullion produced by a qualified supplier accredited either by a relevant, SGE-recognized international market or by SGE directly. Any silver ingot deliverable through SGE shall be either a bullion produced by an SGE Standard Silver Ingot Refiner in compliance with the prevailing standard for silver ingot at SGE, or a standard bullion produced by a qualified supplier accredited by a relevant SGE-recognized international market. Any gold coin deliverable through SGE shall be a gold coin produced by China Gold Coin Incorporation in compliance with the standard *Precious Metal Commemorative Coin Gold Coin* formulated by the PBC. Secondly, SGE has a strict and effective physical quality management system. SGE has a long-term quality supervision and inspection mechanism, including the analysis and testing capability validation, quality control capability assessment and refiners' monthly report and annual sample test validation, as well as comprehensive refiner accreditation and admission mechanism, supervising the accredited refiners multidimensionally in the whole process with various measures, to ensure physical quality is stable and reliable.

Storage and transportation risks. SGE has established a network of Certified Vaults to facilitate physical delivery through SGE as well as bullion storage and other transactions by members and customers. Before establishment, Certified Vaults should conform to the required industry standard of relevant national departments and pass the relevant examination procedure and acceptance check. SGE takes various measures on Certified Vaults from multiple angles, at multiple levels and in an all-round way by establishing rules, refining procedures and screening risks, so as to ensure the full coverage of safety management and operation of each Certified Vault. In terms of transportation safety, SGE makes sure the safety of physical delivery by strengthening the admission requirements of shipping companies, regular self-inspection of shipping companies, in-transit monitoring, arranging insurance cover and improvement of emergency procedures.

Principle 12: Exchange-of-value settlement systems

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

This consideration is not applicable to SGE for the time being.

Principle 13: Participant-default rules and procedures

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

SGE has established detailed default rules and procedures specifying the elements and subsequent resolution of a default and addressing the replenishment of resources following a default.

SGE adopts a multi-tiered risk-management model, whereby SGE manages risks from its members and the members in turn manage risks from their customers.

SGE has defined the elements of a member default, which include, but are not limited to, the situations that: failure of physical delivery due to insufficient fund in member’s Cash Account or insufficient bullion in member’s Bullion Account or its customer’s Bullion Account; and the Settlement Reserve of the member falls below the required minimum and the shortfall is not eliminated within the specified time limit. In the event of a physical delivery default, SGE shall pay compensation to the non-defaulting party and collect default penalty from the defaulting party, and terminate the delivery process. If a member has insufficient Settlement Reserve and is not able to eliminate the shortfall within the prescribed period, SGE shall have the power to take the following actions by suspending the member from opening new positions, executing forced position liquidation by rules until the margin released therefrom is sufficient for contract performance and compensation, disposing of the collaterals posted by the member as margin and applying the proceeds toward contract performance and compensation, disposing of the member’s pledged assets in accordance with the law, disposing of the member’s physical inventories in accordance with the law, drawing on other fund of the member such as its Membership Fee to fulfill contractual obligations and make compensations, drawing on the SGE Risk Reserve by rules, and/or drawing on other financial resources designated by SGE. Upon drawing on the SGE Risk Reserve, SGE shall obtain the corresponding right of recourse or the right of claim against the member. Moreover, pursuant to the *Measures for the Administration of Margin Custodian Banks of Shanghai Gold Exchange*, Custodian Banks shall assist SGE in mitigating liquidity risks.

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

The default rules and procedures of SGE ensure its business continuity by minimizing the impact of default. Moreover, SGE has given explicit provisions on the details of default identification, automatic implementation and discretionary measures.

SGE has set detailed provisions on default procedures that can be implemented automatically. In the event of a member’s default in physical delivery, SGE will timely contact the defaulting member for such default and collect default penalty from the member. In the event of a member’s default arising from insufficient fund, SGE will timely contact the defaulting member for such default and take the following actions by suspending the member from opening new positions and executing forced liquidation by rules until the margin released therefrom is sufficient for contract performance and compensation. If its fund is insufficient upon measures aforementioned, SGE will dispose of the collaterals posted by the member as margin and the member’s physical inventory in accordance with the law or draw on other resources of the member to fulfill contractual obligations and make compensations. If its fund is still insufficient, SGE will draw on in turn the Risk Reserve or the other financial resources designated by SGE.

SGE may, whenever it deems necessary, take one or more of the following actions in conjunction with other risk control measures to warn against and mitigate risks by requiring the submission of a report, arranging a warning appointment, issuing a warning letter, issuing a censure, and/or issuing a risk warning announcement. For emergencies that highly likely have serious impact on the security and stability of the market, SGE sets appropriate discretionary procedures, establishes specialized working groups and imposes general requirements on management procedures and operational practices from prevention of emergencies, responses to emergencies, and resolution of emergencies to post-emergency management.

Generally, SGE tackles members' default in strict compliance with relevant rules and reports the management of such default to the relevant person-in-charge and senior executives. If a member's default will have or is having a significant impact on the market, senior executives shall report such default to the PBC in time.

SGE reviews its default rules and procedures based on its businesses, especially during the periods for revision of rules, consolidation of business procedures, and inspection of internal audit and compliance.

SGE carries out system testing and emergency drills involving default management on an ongoing basis to test default management procedures. These drills afford participants the opportunity to be familiar with the default procedures and propose suggestions and recommendations on the default management procedures, thereby contributing to the ongoing optimization and improvement of such procedures.

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

SGE's default rules and procedures, available resources for default management, and other information are set out in its rules and business procedures which are publicly disclosed on its website.

The *Trading Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Risk Control of Shanghai Gold Exchange*, the *Detailed Rules for Price Matching Trading of Shanghai Gold Exchange*, the *Detailed Rules for Price Asking Trading of Shanghai Gold Exchange*, the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Detailed Delivery Rules of Shanghai Gold Exchange*, and the *Measures for the Administration of Margin Collateral Service of Shanghai Gold Exchange*, and other rules issued by SGE include detailed provisions on the identification and classification of default, assumption of default liabilities, scope of available measures, and default management procedures and steps, etc.

SGE continuously updates and refines its default management rules through default management drills, discussions with members, and other means. Meanwhile, SGE revises the default rules on an ongoing basis considering changes in its rules and business and publicly discloses the updated version on its website.

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

When updating (or revising) default rules for its business, SGE invites its members to discuss and improve such rules based on their comments. Each year, SGE reviews the default management procedures by relevant system testing or emergency drills involving different types of members and their customers. During the system testing or emergency drills, SGE extensively receives comments from the members and their customers to improve the details of default management procedures.

In addition, SGE consults members on specific default management steps regularly, fully informs them of precautions and risks of the default management process, and accepts their comments. SGE discusses and reaches consensus on key steps and difficulties involved in default management with the members.

Principle 14: Segregation and portability

Key consideration 14.1: 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.

SGE performs CCP clearing services following a "multi-tiered" approach, which involves direct participants and indirect participants. The direct participants are members of SGE who directly participate in the clearing process, while the indirect participates are the brokerage customers of members. SGE has clear procedures and rules for the brokerage business as well as appropriate segregation and portability arrangements, which can effectively protect the customer's position and relevant collateral from the members' default or insolvency.

SGE requires that each member shall segregate its proprietary business from its brokerage business, open a Settlement Account for each trading seat at a Custodian Bank to hold its own or its customers' margins and relevant payments, not commingle margins for proprietary trades and brokerage trades, and strictly separate accounts for its proprietary seat from those for its brokerage seat. SGE specifies that customer margins are the property of customers and are strictly prohibited from being misappropriated by members in any form. Meanwhile, SGE collects the One-Way Large-side margin and cumulatively collects margin from each customer in a brokerage seat account to ensure that the brokerage seat has more adequate collaterals to cover all positions of the customer.

SGE adopts a "one account, one code" system. Each customer can have only one customer code at SGE, which may combine with different member seat codes to create multiple trading codes. SGE has developed relevant rules which require each member to open an independent account and apply for a unique trading code for each customer it carries through a brokerage seat, and shall not trade for a customer through any trading code other than the one belonging to the customer， and SGE stipulates the information reporting obligations of members. Through customer codes and trading codes, the core system of SGE can collect relevant information such as customers' basic information, physical inventories, changes in positions held by customers and Trading Margin for such positions, which is useful for SGE to complete customer portability within a prescribed timeframe if the below situation occurs: a member is involved in a merger, division, suspension of business operations, dissolution, or insolvency, no longer meets the requirements for offering brokerage services, or breaches the rules of SGE and incurs a risk of violation or default, etc.

In addition, pursuant to relevant laws and regulations, the positions and collaterals of a customer are the property of the customer instead of its carrying member. In case of insolvency of a member, its customers shall have the right to dispose of their positions and collaterals at their sole discretion to protect themselves from being affected by such insolvency.

Key consideration 14.2: A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.

SGE adopts a "one account, one code" system and a separate account management system, and imposes requirements on the information reporting obligations of members. Through customer codes and trading codes, the core system of SGE can collect relevant information such as customers' basic information, physical inventories, changes in positions held by customers and Trading Margin for such positions, and establish an account for the positions of each customer to record information on its existing transactions.

Members' position management, margin account management and Bullion Account management for proprietary trades and brokerage trades are completely separated. SGE requires members to use independent brokerage seats to provide brokerage services for individual customers or corporate customers. Margins of customers are held in the member's Brokerage Seat Settlement Account, but the ownership of the margin still belongs to customers under laws. Meanwhile, SGE strictly prohibits members from misappropriating the margins of their customers in any form. Each member has the obligation and duty to separately manage the fund deposited into different types of Brokerage Seat Settlement Accounts by its customers, establish a subsidiary account for each customer and daily record and verify inbound and outbound fund transfers, gains and losses, Trading Margin, and transaction fees for each customer in a chronological order. Besides, SGE calculates and collects Trading Margin from brokerage seats on a gross basis and daily gains and losses on a net basis, and calculate the Trading Margin based on customers' positions.

In addition, each member shall use its own capital to meet the minimum Settlement Reserve for its seats and maintain it on a daily basis as required. SGE has the right to adjust a member's minimum Settlement Reserve based on the type of business it plans to engage in and the scale of the member. Therefore, if there is a shortfall in the margin of a customer, its member shall first compensate with its own capital which means the margins of other customers will not be misappropriated.

Key consideration 14.3: A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.

SGE has relevant arrangements and measures to ensure that SGE can complete customer portability arrangements within a certain period of time if:

- The member is involved in a merger, division, suspension of business operations, dissolution, or insolvency;
- The member no longer meets the requirements for offering brokerage services;
- The member breaches the rules of SGE and incurs a risk of violation or default;
- There is any other circumstance in which a transfer of customers is authorized by SGE.

The specific procedures for customer portability arrangements include that:

- The transferring member and the accepting member shall jointly file a transfer application with SGE and submit the application report as well as materials proving that the customers concerned have been informed of the transfer arrangement;

- SGE shall approve the application and determine a trading day for transfer with the relevant members;
- SGE shall transfer customers after day-end settlement on the scheduled date;
- SGE shall provide the members concerned with a transfer list which shall be checked and confirmed by the members.

In addition, Chinese laws provide legal certainty for the transfer of assets of a member's customer to any other member(s) of SGE's CCP clearing services. Pursuant to Chinese laws, the positions and collaterals of a customer shall belong to the customer instead of its carrying member. In the case of insolvency of a member, its customers shall have the right to dispose of their positions and collaterals at their sole discretion to protect themselves from being affected by such insolvency.

Key consideration 14.4: 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 a customer's 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 portability a participant's customers' positions and related collateral.

The positions and collaterals of a member's customer are recorded and operated under the account of the member and protected separately from those of other customers and shall not be used to resolve any other customer's default. SGE has considered the segregation and protection of customers' positions and collaterals in such areas as ongoing monitoring, daily mark-to-market, arrangements for and use of financial resources at all levels and business continuity.

During its business operations, SGE keeps a detailed record of each customer when it applies for collaterals posted as margin.

Principle 15: General business risk

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

SGE has a normative and complete risk-management system to identify and manage general business risks in the CCP clearing services. The general business risks identified by SGE are risks and potential losses arising from management and operation and not related to default, which cannot be covered by financial resources described in principle of credit risk or liquidity risk. Through reasonable organizational structure, division of duties, audit and supervision, assessment and evaluation system, and robust financial management and control systems, SGE could timely and effectively identify, monitor and manage general business risks and takes effective and targeted measures to mitigate risks.

SGE analyzes key financial indicators on a monthly basis, and regularly prepares financial analysis reports; implements comprehensive budget management, enhances budget control, and develops annual financial budget and funding plan; stays focus on the quality and liquidity of liquid net assets funded by equity, so as to meet its current and projected operating expenses required under a range of scenarios. Further, SGE fully considers the potential impact on the cash flows and capital in business risks assessment and covers the potential losses of general business risks by equity under normal circumstances. SGE's retained earnings are adequate and the scale of liquid net assets are much larger than the current operating expenses for six months. These liquid net assets are mainly composed of bank deposits kept in effectively regulated, well-run and reputable commercial banks and can meet projected operating expenses under current and unfavorable market conditions.

Key consideration 15.2: An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity 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.

SGE has accumulated relatively rich liquid assets funded by equity which are growing rapidly and has the ability to support the CCP clearing services to operate continuously and steadily in the event of general business losses. The scale of SGE's equity is far greater than the potential losses arising from potential general business risks. SGE's assets funded by equity are highly liquid so that SGE can maintain continuity of business operations and services facing general business risks.

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

where relevant and appropriate to avoid duplicate capital requirements.

SGE is legally subject to the supervision and guidance of the PBC and maintains a recovery and orderly wind-down plan in compliance with the relevant arrangements of the regulatory authority.

SGE is committed to maintaining the continuity of business under any condition, and it has practical business emergency plan and holds sufficient liquid net assets funded by equity to support business continuity and recovery. At present, SGE's highly liquid assets funded by equity are sufficient to cover current operating expenses for six months, which can support and ensure its business continuity. SGE's net assets funded by equity, mainly composed of monetary assets, are managed in strict accordance with the *Fund Management System of Shanghai Gold Exchange* and the *Detailed Rules for the Deposit of Fund of Shanghai Gold Exchange* and deposited at effectively regulated, well-run and reputable state-owned or joint-stock commercial banks to fully protect the safety, stability and liquidity of such assets.

SGE deposits margins from members at Custodian Banks designated by SGE. Custodian Banks are subject to strict admission criteria, real-time monitoring and regular assessments to ensure the safe custody of fund. Moreover, SGE is a privileged participant of the PBC's HVPS and opens a concentration account to hold members' Trading Margin. Members' physical inventories are safely deposited at SGE's Certified Vaults. SGE has specified the standards for the establishment of Certified Vaults and established a rigorous system for the day-to-day management of Certified Vaults. To prevent material risk incidents related to SGE's business activities, SGE has accrued a Risk Reserve in accordance with the *Measures for the Administration of Risk Reserve of Shanghai Gold Exchange*. The Risk Reserve is used to safeguard the smooth operations of the market and is accounted for separately.

In summary, SGE strictly separates its own capital used to cover general business risks from margins, physical inventories, collaterals and Risk Reserve used to cover participant default risk.

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

The liquid net assets funded by equity of SGE, mainly composed of bank deposits, are sufficient to cover general business risks. These monetary assets are deposited at state-owned or joint-stock commercial banks effectively regulated and can meet current and projected operating expenses under unfavorable market conditions. SGE reasonably manages liquid net assets funded by equity in strict accordance with the *Fund Management System of Shanghai Gold Exchange* and the *Detailed Rules for the Deposit of Funds of Shanghai Gold Exchange*. SGE's bank deposits are all highly liquid and readily convertible into cash.

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

SGE is well-managed and has a complete set of risk control measures with sufficient equity capital. Further, SGE maintains good cooperation with state-owned or joint-stock commercial banks and can obtain support if necessary. Upon the decision of its governing body and the approval of the regulator, SGE can raise additional equity capital as well.

<u>Principle 16: Custody and investment risks</u>

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

SGE's own assets and participants' assets are strictly segregated from each other and accounted for separately. The accounting firm audits SGE's own assets and deposited margins and issues an auditor's report on an annual basis.

With respect to the day-to-day management of its own assets, SGE reasonably arranges the deposit of its own capital in accordance with the *Fund Management System of Shanghai Gold Exchange* and the *Detailed Rules for the Deposit of Fund of Shanghai Gold Exchange*. SGE's own capital is deposited at state-owned or joint-stock commercial banks which are strictly supervised by the State's regulators with creditworthiness and systematical importance and have robust accounting practices and internal controls to ensure safe custody of assets.

With respect to the custody of participants' assets, SGE strictly complies with the *Detailed Clearing and Settlement Rules of Shanghai Gold Exchange*, the *Detailed Delivery Rules of Shanghai Gold Exchange*, the *Measures for the Administration of Margin Custodian Banks of Shanghai Gold Exchange*, the *Measures for the Administration of Clearing Fund of Shanghai Gold Exchange* and the *Measures for the Administration of Certified Vaults of Shanghai Gold Exchange*. Margins are deposited at Custodian Banks designated by SGE. Such Custodian Banks are state-owned or joint-stock commercial banks that are supervised by the State's regulators, participate in deposit insurance, and have robust accounting practices, internal controls, procedures, technical conditions and emergency response capacity to ensure the safe custody of assets. SGE has established a series of rules for the management of Custodian Banks such as strict admission criteria, real-time monitoring and regular assessments to ensure the safe custody of fund. Bullion such as gold, silver, platinum and gold coins are deposited at Certified Vaults of SGE. Most of the Certified Vaults for gold and platinum are the vaults of state-owned or joint-stock commercial banks; Certified Vaults for silver are the warehouses of large domestic shipping companies or the warehouses of refiners that may provide standard silver ingots; Certified Vaults for gold coins are the warehouses of China Gold Coin Incorporation. SGE has specified the criteria for the Certified Vaults and established rigorous management systems to ensure the safety of assets under custody (see Principle 10).

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

SGE carries out rigorous and prudential management of its own assets and participants' assets in strict accordance with relevant rules and has the right of rapid acquisition and disposal of the assets.

SGE strictly separates its own assets from participants' assets. With respect to its own assets, SGE keeps its bank deposits at state-owned or joint-stock commercial banks to fully protect these deposits and maintains prompt access to its own assets in accordance with rules for the management of fund. With respect to margins among participants' assets, SGE keeps them as bank deposits at state-owned or joint-stock commercial banks to fully protect these assets, and maintains the best liquidity and the right of disposal over such assets. As the holder of accounts opened at Custodian Banks, SGE can dispose of assets in the accounts and can give instructions to the Custodian Banks directly for the transfer, deposit, distribution or disposal of assets. In the event of a member's default, SGE may obtain the margins deposited by the member with respect to the CCP clearing services involved in the default from the bank, to cover SGE's losses by default. With respect to gold physical inventories posted as margin among participants' assets, SGE can ensure the enforcement of its interests in the assets under custody in accordance with applicable laws, ministry-level rules, normative legal documents and rules.

No assets of SGE are kept in other time zones or jurisdictions.

Key consideration 16.3: An FMI should evaluate and understand its exposures to its Custodian Banks, taking into account the full scope of its relationships with each.

SGE selects Custodian Banks in a prudential and strict manner and comprehensively assesses and monitors the exposures. Most of the Custodian Banks selected by SGE are state-owned commercial banks or joint-stock commercial banks, which disperses SGE's risk exposures to the banks while ensuring the safety of its deposits at these banks.

SGE monitors the fund balance of each Custodian Bank through its core system to ensure the fund balance is sufficient to meet liquidity required by SGE's day-to-day operations. Through stress testing, SGE analyzes liquidity risks related to Custodian Banks. Further, SGE transfers an uncertain amount of fund from each Custodian Bank on an ad-hoc basis to test whether fund deposited at such bank is kept in safety. Besides, SGE performs regular assessments on each Custodian Bank to evaluate and review its risk exposure to the bank in all respects.

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

SGE's overall risk-management strategy is primarily robust and its investment strategy is consistent with the overall risk-management strategy, namely obtaining certain return on investment while ensuring the safety and adequate liquidity of fund. All major investment decisions of SGE are made in accordance with the comprehensive, rigorous and standardized decision-making procedures. At present, most of SGE's assets are deposited at state-owned commercial banks or joint-stock commercial banks to fully protect the safety, stability and liquidity of such assets. SGE discloses its investment strategy to the Board of Directors and the PBC in strict accordance with the *Rules on Supervision of Business Activities of the Shanghai Gold Exchange* and the *Measures for the Administration of Investing and Financing Activities of Enterprises under the People's Bank of China*. In addition, SGE has selected many state-owned banks or joint-stock commercial banks as Custodian Banks to reduce its overall exposures and prevent excessive concentration of credit risk.

Up to now, SGE has never invested any of its assets in bonds.

Principle 17: Operational risk

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

SGE establishes a multi-tiered operational risk-management framework to take appropriate and effective measures to identify and monitor operational risks in daily operations, and carries out the real-time dynamic management for operational risks.

The operational risks of SGE can be divided into two main categories: one is the operational risks of information technology system while the other is the operational risks of business. The former mainly refers to the uncertainty caused to the CCP clearing services of SGE due to operational problems such as instability of system operations, failure of system capacity to meet business demands, launch of major business, and impact of IT system upgrades. The latter mainly refers to the uncertainty on the level of business operations, including risks arising from unsound policies and procedures, manual operational errors, the interruption of public utility services, etc.

Attaching great importance to operational risk management, SGE has arranged, deployed and facilitated its operational risk-management together with its business development and established a robust risk-management framework suitable for its own businesses that is aligned with international practices and standards.

In terms of organizational structure, the Board of Directors shall take responsibility for risk management pursuant to the *Articles of Association.* The Risk Management Committee acts as a professional consulting body in managing risks. Senior executives, holding the role as the decision body, shall be responsible for comprehensive risk management and implement the decisions adopted by the Board of Directors. All business departments, branches, Risk Management Department, and Legal and Internal Audit Department are critical components of the comprehensive risk-management system, which build up the “three lines of defense” for the risk management of SGE.

In terms of the system design, a multi-tiered operational risk-management framework has been set applicable at the levels of SGE, its departments and specific businesses. SGE regularly assesses such framework to ensure that it is suitable and effective in the process of operational risk management and regularly reviews the implementation of such framework for any possible risks to guarantee the thorough implementation of its operational risk management concepts and relevant rules during its business operations.

In terms of human resources management, SGE enhances the operational risk-management concepts, in personnel selection, training, rotation, prevention and control of workforce risk, routine management and confidentiality management, to improve the capabilities of business and technical personnel to predict and identify operational risks and make the risk prevention concept deeply rooted. When selecting personnel, SGE follows strict recruitment procedures, including multiple interviews, physical entry examination, background investigation, political review, and educational background and academic degree attestations. SGE has set up a mechanism for training of professionals to provide its employees with all types of training at all levels, and help employees plan their career path. SGE implements job rotations for its managers, with a focus on developing their comprehensive capabilities and potentialities and increasing the creativity and initiative of employees in key posts, in order to reasonably allocate human resources and effectively control workforce risks. SGE adopts a dual-role model for personnel management, prevents and controls corruption risks, identifies and works out measures to deal with risks, and equips employees in key posts such as financial and remuneration posts with dedicated cabinets and computers. SGE's routine management of personnel covers work attendance, vacation rules, and business or private trips, etc. SGE manages personnel by signing a confidential agreement with new employees to specify matters to be kept confidential and corresponding confidentiality responsibilities and obligations, setting out the confidentiality obligations of resigned employees, and requiring employees with access to core secrets to be audited or inspected before demission.

In terms of enhancing risk management in information system operation, SGE has established "three lines of defense" for the safety of IT system operation to prevent and control relevant security risks, and developed robust rules and procedures for the operation and maintenance management, security risk management and internal control of the IT systems. SGE makes changes to the IT systems in accordance with relevant procedures and the systems cannot be updated until getting approval. Such changes are made via bastion hosts and approved by two individuals. SGE conducts regular inspections to identify, record and mitigate operation and maintenance risk. SGE has built a three-tiered emergency management system for networks and IT systems, which consists of system emergency response manuals, system contingency sub-plans and an overall contingency plan. SGE conducts system emergency drills in various forms to gain experience and prepares emergency drill reports. SGE regularly evaluates and improves the security level of IT system protection.

In terms of business continuity plan, SGE has developed emergency response procedures, system contingency plans, etc., and signed agreements with public utility providers. SGE is persistently building and improving its remote disaster recovery system to cope with emergency risks and ensure business continuity.

Key consideration 17.2: An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risks, 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.

SGE's Board of Directors plays an important role in the decision-making process in operational risk management. The Risk Management Committee conducts risk management according to the Board of Directors' decisions, which is responsible for: (1) analyzing and evaluating all risks including operational risks, and proposing recommendations for policies on how to prevent and mitigate such risks; (2) assessing SGE’s risk management status, capability and level and proposing recommendations on how to improve its risk management and internal control.

Meanwhile, SGE has the Business Committee responsible for supervising, investigating, reviewing, and solving issues related to trading activities, and the IT Committee responsible for supervising and guiding the establishment, security, standardization, operation and maintenance of SGE’s IT and application systems.

To oversee all business lines, senior executives closely combine operational risk management with business operations and guides all business departments to implement the risk-management concept and the requirements of the operational risk management system in the development, launch, and operation of businesses.

The PBC, the National Audit Office of China and other external institutions regularly inspect SGE’s business including its operational risk-management rules, procedures and implementation. SGE’s IT systems are regularly subject to information security level protection evaluations by a third-party evaluator.

SGE consistently takes operational risk management as a part of its routine tasks and keeps a clear understanding of operational risks possibly arising from major changes. Firstly, SGE regularly conducts internal inspections and evaluations to ensure the suitability of the operational risk-management framework and the effectiveness of its implementation. Besides, SGE highly focuses on operational risk management during major changes and conducts comprehensive and prudent evaluation and testing on systems, rules, business procedures and controls during the launch of new business or the upgrade of IT systems. For the early-stage design and development of its IT systems, SGE has developed general technical specifications covering coding standards, database design, security function, virtualization, etc.

Furthermore, when implementing various operational risk management, SGE establishes an emergency response mechanism and emergency response working groups and develops emergency response procedures such as the *Emergency Response Procedures of Shanghai Gold Exchange*. SGE’s business and technical departments set up specific contingency plans, conduct regular emergency response drills and ensure IT systems and personnel well-equipped to address risks caused by emergencies or business failures.

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

SGE's general requirements for its system operations are safe, stable and efficient and SGE has established relevant policies to achieve these objectives.

In terms of operational reliability, SGE guarantees the availability of its systems through software and hardware structure designs, personnel allocation, monitoring management, etc. Currently, SGE's computer rooms comply with the national standards and satisfy the basic requirements of important IT systems for the fundamental environment. SGE has established a complete technical operation and maintenance management and execution group which is responsible for applications, systems, network, fundamental environment and on-duty monitoring. SGE has developed a well-designed contingency plan for networks and IT systems to give early warnings and respond to emergency security incidents related to IT systems to minimize their impacts and ensure the smooth operation of networks and IT systems. In addition, in unexpected full-load or overloaded scenarios, SGE's technicians analyze problems, take emergency measures, develop emergency optimization versions through emergency response procedures and initiate such changes and upgrades to optimize the systems after emergency testing if required.

In terms of business operation, SGE reduces operational risk through multiple means such as policy improvement, personnel education and business training. (1) SGE has developed comprehensive operation and maintenance management rules, such as the *Computer Room Management Rules of Shanghai Gold Exchange*, the *Security Management Rules for Computers, Network Systems and Electronic Data*, the *Rules* for *Prevention and Handling of Technical Accidents*, the *Management Rules for Technical Materials and Documents*, the *Measures for the Administration of Production Terminals of Shanghai Gold Exchange*, the *Measures for the Use and Management of Mobile Storage Media in Production Environment*, the *System Software Management Rules of Shanghai Gold Exchange*, and the *Measures for the Administration of Digital Certificates of Shanghai Gold Exchange*. (2) SGE has compiled an operation manual for its business based on the four eye principle to clearly define business procedures and operational authorizations and implement operational risk prevention tasks in each transaction and business process. (3) SGE supports the launch of new business and the upgrades and changes of systems by providing training to its personnel and improving their operational proficiency through business drills to avoid operational errors. (4) SGE regularly consolidates and refines business operation procedures to make the business logic more simple and reasonable during operations. (5) SGE assigns the responsibilities for managing operational risk to specific personnel by maintaining post logs and business records as a basis for their operation.

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

SGE has been fully aware of the business prospect, carrying out the evaluation of business growth and reserving space for the business growth from hardware configuration, system design, and personnel allocation, so as to provide services in compliance with the consistent standards of SGE based on the significant growth of business volume.

Firstly, SGE conducts business growth assessment reasonably. SGE makes a forecast on its medium and long-term business growth. At the beginning of the infrastructures, technical platforms and application systems design, SGE fully considers vertical and horizontal expandability of processing ability, as well as performance and capacity indicators in order to pave the way for SGE's medium and long-term business development. At the testing stage of its systems, SGE conducts performance tests to ensure the systems meet design requirements. During the practical operations of its systems, SGE monitors the use of various resources through its monitoring system and timely addresses any situation in which possible insufficiency of resources is detected. Furthermore, SGE conducts regular evaluations on business growth each year. On the basis of analyzing the structure and historical growth of current market members, SGE comprehensively evaluates business growth for the following year considering economic trend forecasts, regulatory policy analysis, market survey results and other factors, and includes relevant tasks into its annual plan for the business growth.

Secondly, SGE reserves human resources for business growth. According to business growth evaluation results and business volume changes brought by new business launch, SGE recruits and trains adequate personnel to ensure a reasonable balance between human capital and business growth, and sets up roles reasonably and integrates incremental business with existing posts to improve the effectiveness of job allocation.

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

In terms of physical security, SGE has set up and managed its data room in accordance with the *Cybersecurity Law of the People's Republic of China*, the *Code for Design of Electronic Information System Room* (GB50174), and the *General Specification for Computer Field* (GB/T2887) and has formulated the *Computer Room Management Rules of Shanghai Gold Exchange* to strictly manage the physical security of its computer rooms.

In terms of network access security, SGE adopts a highly available network structure that is physically isolated from other networks and deploys heterogeneous firewalls, intrusion detectors and other security check and protection equipment which are under the centralized monitoring of on-duty personnel 24 hours a day, 7 days a week.

In terms of information security, SGE has formulated the *Security Management Rules for Computers, Network Systems and Electronic Data of Shanghai Gold Exchange* and the *Measures for the Administration of Production Terminals of Shanghai Gold Exchange* and other information security management policies referring to security standards such as guidance on classification protection assessment of information system, ISO27001 Information Security Management System, and ISO27002 IT Operational Services Management Procedures to address all potential vulnerabilities and threats.

Key consideration 17.6: An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) system 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.

SGE has developed emergency response procedures and system contingency plans, signed agreements with public utility providers, and set up a real-time synchronization mechanism of routine database and stream file between its primary center in Shanghai and its disaster recovery center in Shenzhen, to address emergency risks and ensure business continuity.

SGE designs system plans based on security, reliability and expandability which specify business continuity levels and relevant protection measures. According to the PBC's multi-level protection standards for business continuity of information systems, SGE's core system is subject to the level-IV protection. Therefore, SGE's system is designed in accordance with strict requirements on high availability, high maintainability, high security, high expandability and high performance. In terms of security, the system is required to meet requirements on application and data security for level-III systems specified in the *Assessment of Information Security Level Protection for Information Systems in the Financial Industry* and to set general design criteria and coding specifications consistent with required standards. In terms of reliability, all nodes of the system are equipped with two computers (one primary computer and one backup computer), between which a switch could be activated automatically when one of them fails, to ensure business continuity. Meanwhile, to ensure high maintainability, a low-coupling design is implemented among the system modules and during subsequent maintenance, and upgrades are made only for modules whose functions are to be changed. In terms of expandability, the system can flexibly respond to business changes, such as business growth, business adjustment, launch of similar products, and terminal optimization and upgrade to support the expansion of innovative businesses in time. At present, SGE has a remote disaster recovery center under construction in its IDC room in Shenzhen for which systems, networks and applications have been deployed. Such disaster recovery center's core system has the same physical structure with the primary production center in Shanghai and the other systems of the disaster recovery center follow the same logical structure with the primary center. According to the features of business and technology implementation, SGE has set up a real-time synchronization mechanism of routine database and stream file between the primary center in Shanghai and its disaster recovery center in Shenzhen. The disaster recovery center's trading system can control its recovery point objective (RPO) within one minute and recovery time objective (RTO) within 30 minutes. Both the RPO and RTO have been verified through tests and drills. The disaster recovery center's clearing system is technically capable of taking over the clearing process if the primary center malfunctions at any time to ensure the integrity of clearing data. This function has been verified through switchover exercises at the disaster recovery center. The disaster recovery system was put into trial operation in 2019 and is under operation and ready for switchover. SGE conducted three switchover exercises for the disaster recovery system in 2019. In particular, SGE invited 12 members, including Industrial and Commercial Bank of China, Bank of China, China Everbright Bank, Shanghai Pudong Development Bank, and China Securities, to participate in the third exercise, during which the system processed a peak of trading orders and contract notes which was at the same level (1 million) with the production center, and the clearing cost six minutes. These exercises have preliminarily verified that SGE's disaster recovery center in Shenzhen is technically capable of performing emergency takeovers and guaranteeing business continuity.

Furthermore, SGE is speeding up the development of the fundamental environment and core system of the disaster recovery center in Shenzhen, which is currently under construction. Once the construction is completed, SGE's disaster recovery system will be further upgraded and, as intended, like SGE's all core application systems to meet the disaster recovery requirements of the PBC on production systems.

SGE has established an emergency response mechanism, defined the duties and communication mechanism of the emergency response working groups and relevant departments, and developed contingency plans to comprehensively provide for the rapid resolution of various risk events, such as network and information security incidents, extreme market quotations, public sentiment emergencies, mass events, major disasters, workplace emergencies, bullion storage and transportation emergencies. These efforts, supported by system backup and recovery plan as well as various emergency drills, are intended to enhance SGE's emergency response and rapid resolution capabilities and ensure the effective implementation and timely recovery of business and technical operations.

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

In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

The operational risks of SGE can be divided into two main categories: one is the operational risks of information technology system while the other is the operational risks of business. The former mainly refers to the uncertainty caused to the CCP clearing services of SGE due to operational problems such as instability of system operations, failure of system capacity to meet business demands, launch of major business, and impact of IT system upgrades. The latter mainly refers to the uncertainty on the level of business operations, including risks arising from unsound policies and procedures, manual operational errors, the interruption of public utility services, etc.

SGE has independently developed all its key businesses which are thus free from risks associated with outsourcing. SGE follows relevant procedures in selecting its partners and has signed contracts with them to define both parties' rights and obligations. SGE has signed service agreements with public utility providers to define both parties' rights and obligations. According to agreements with power suppliers, SGE is a class-II power customer, meaning that power supply for its routine operations can be guaranteed. Meanwhile, SGE has backup electric power to address extreme power outages. In terms of network services, SGE has set up a backup network to ensure that its systems could be automatically switched over to the backup network and maintain continuous operation in the case of interruption of services from a network service operator.

In line with the policies of the PBC on internal audit, information technology audit and off-office audit, SGE has worked out a wide range of internal risk control measures, covering internal audit, risk evaluation, and compliance inspection to identify, monitor and manage its routine operational risks.

Principle 18: Access and participation requirements

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

For fair and open access to its services by all market participants, SGE has set detailed requirements on membership admission and other matters in the *Measures for the Administration of Membership of Shanghai Gold Exchange* approved by the PBC and disclosed to market participants such requirements on its website. Based on reasonable risk-related requirements, SGE can ensure that its members have sufficient financial resources and operational capacity to perform potential future obligations and minimize risks.

Members of SGE are divided into General Members and Special Members according to the corresponding admission criteria. Specifically, General Members are categorized into Financial Members, Non-Financial Members, and Proprietary Members according to their scope of business. Financial Members may engage in proprietary business, brokerage business, and other businesses approved by regulatory authorities; Non-Financial Members may engage in proprietary business and brokerage business for corporate customers; while Proprietary Members may engage in proprietary business only. Special Members consist of International members, Foreign-invested Financial Members and other institutional investors recognized by SGE.

SGE imposes strict requirements on membership admission, including that an applicant shall: (1) be a legal entity or an economic organization of other forms registered in the PRC; (2) abide by national laws and regulations, and applicable rules of regulatory authorities, and the *Articles of Association* and rules of SGE; (3) have net assets of no less than RMB 50 million and make profits for the last three consecutive accounting years; (4) be operating in compliance with the law, have a good reputation, and have no record of serious violations of laws and rules in recent three years; (5) have well-established organizational structure, financial management system, internal control structure and risk-management framework; and (6) have regular business premises and necessary facilities for business operation.

With respect to customers' access to services, SGE requires that a member who engages in brokerage business shall not accept a customer who: (1) lacks full capacity for civil conduct; (2) fails to provide a power of attorney issued by its legal representative, in the case of an institutional customer; (3) violates the rules of regulators and SGE on anti-money laundering, counter-terrorist financing and anti-tax evasion and the circumstance is serious; (4) fails to provide basic identity information or qualification certificates as required by SGE; or (5) is found to fall under any circumstances as otherwise provided in applicable laws and regulations, and rules of the PBC and SGE.

When making updates (or revisions) to legal documents including those on membership management and customer suitability management, SGE conducts a survey on market participants such as members, customers and Custodian Banks, invites experts from law firms, judicial authorities, and other institutions to discuss and assess the legal issues involved, organizes discussion meetings with market participants to solicit their comments on the legal documents, and convenes the Members' Assembly to vote on such updates (or revisions) and explain and communicate relevant legal arrangements. Before promulgating and implementing such legal documents, SGE submits them to the PBC for approval or for record in accordance with regulatory requirements.

SGE publicly discloses such legal documents on its website and provides periodic training on such legal documents to members, customers, Custodian Banks, and other market participants to ensure their fair and open access to its services.

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

To ensure the safety and efficiency of the market, SGE has set membership admission criteria and application material requirements accordingly. The details of the membership admission criteria and application materials are accessible on SGE website.

Subject to maintaining acceptable risk control standards, SGE endeavors to set requirements that have the least-restrictive impact on access that circumstances permit. For instance, the requirement that a financial institution must obtain relevant business licenses and comply with the relevant requirements of regulators to become a Financial Member is imposed as required by laws or regulations, and SGE generally sets no additional admission requirements.

Not only posted on its website the *Measures for the Administration of Membership of Shanghai Gold Exchange* and other relevant business rules, but SGE presents in detail to market participants its membership admission requirements and other matters as member training, Gold Lecture Series and business promotion events.

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

SGE publicly discloses detailed provisions of membership management, business management, regulation and punishment of members, and other matters on its website. Such rules also contain explicit provisions on procedures for the business suspension and orderly exit of members that have breached or no longer meet the participation requirements.

SGE clearly stipulates the reporting obligations of members, supervision and regulation on members and other issues. For example, in the event of any significant change in its operation, management and other areas, a member shall submit a written report on such change to SGE within 20 business days; and in the event of any major operational risk or any other circumstance, a member shall immediately report to SGE and provide the updates on an ongoing basis.

SGE has the right to inspect and supervise the eligibility of its members, qualifications of traders and business operations of the members and, based on facts and evidences through investigation, to take regulatory actions, such as giving an oral warning, issuing a written letter, requiring rectification, arranging a meeting, and initiating a special investigation, against members who have misbehaved or are likely to misbehave. If a member violates applicable risk -management rules, SGE may, according to the severity of such violation, take the following actions against the member by arranging a warning appointment, issuing a written letter, circulating a notice of criticism, issuing a censure, suspending the opening of new positions, suspending or restricting business, and adjusting or revoking membership, etc.

Principle 19: Tiered participation arrangements

Key consideration 19.1: An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.

SGE performs CCP clearing services following a "multi-tiered" approach, which involves direct participants and indirect participants. The direct participants are members of SGE, while the indirect participates are the customers under the brokerage seats.

SGE adopts a "one account, one code" system. Each customer can have only one customer code at SGE, which may combine with different member seat codes to create multiple trading codes. SGE has developed relevant rules that each member shall open a journal account and apply for a unique trading code for each customer it carries through a brokerage seat and shall not trade for a customer through any trading code other than the one belonging to the customer, and members shall perform reporting obligations accordingly. When accepting trading instructions from a customer, a member shall perform due diligence and comply with the principle of "know your customer" to verify valid identification of the customer, register basic information of the customer's identity, and retain copies or photocopies of the valid identification and the original authorization letter if applicable. Moreover, the member shall take appropriate measures to know the purpose and nature of customers' transactions, the natural persons controlling them as well as the ultimate beneficiaries of those transactions. Members have the obligation to report (real-name) information of their customers to SGE, including, but not limited to, termination and change of the brokerage relationship, other significant changes, and changes in operations. Through customer codes and trading codes, the core system of SGE can collect relevant information such as customers' basic information, physical inventories, changes in positions held by customers and Trading Margin for such position, which contributes to identify, monitor and manage any major risks to SGE arising from its tiered clearing arrangement. SGE clears trades for its members and the members clear trades for their customers, which means SGE has no direct exposure to the default of customers, limiting the scope of risks. However, the default of a customer could adversely affect its carrying member, and the member is required to be fully liable for such default and be the first party to assume all liabilities for any default of brokerage seat. Therefore, SGE has established a comprehensive risk management framework involving multiple areas, approaches, and measures, including, but not limited to, membership admission criteria, ongoing monitoring, pre-trade risk control, daily mark-to-market, Risk Reserve, and management of violation and default, to keep risks under control.

In addition, a member or customer's default might pose risks to any other customers carried by the member. SGE reduces "peer customer risk" faced by customers through its account segregation system and customer position transfer arrangements.

Key consideration 19.2: An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

SGE assesses the material dependencies between direct and indirect participants on an ongoing basis. Such dependencies lie in the fund clearing and settlement of customers performed by their carrying members. To reduce the impact of these dependencies on SGE, SGE requires that its members shall timely collect payable fund or bullion in full from their customers and the performance of obligations by customers shall not be the precondition for the settlement between the members and SGE and for their performance of corresponding obligations.

Given that members are responsible for the clearing and settlement of their customers' trades, the default of the customers might have an adverse impact on these members and even on SGE. Considering this factor, SGE has established a comprehensive risk management framework involving multiple areas, approaches, and measures including, but not limited to, membership admission criteria, ongoing monitoring, pre-trade risk control, daily mark-to-market, Risk Reserve, and management of violation and default, to ensure that SGE can timely and accurately identify relevant risks existing between each member and customer that may adversely impact SGE.

Key consideration 19.3: An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants

whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.

SGE uses its core system to identify and monitor indirect participants. The core system of SGE records and monitors the basic information, changes in position and physical inventories of each customer, and other relevant information on a real-time basis to quickly identify customers with high levels of exposure.

The *Measures for the Administration of Risk Control of Shanghai Gold Exchange* provides that SGE may control risks through price limits, margin requirements, position limits, trading limits, large position reporting, and other measures. And it sets out explicitly (1) the maximum size of long positions or short positions each member seat or customer is permitted by SGE to hold in a particular contract; and (2) the maximum number of position-opening trade in a particular contract a member seat or customer is permitted to execute within a set period. It also requires that when the open positions under a member's proprietary seat or brokerage seat or held by a single customer reach 80% of the position limit, or upon request by SGE, the member or customer shall report details on its fund and open positions to SGE. The customer's report shall be submitted through its carrying member. Moreover, SGE may adjust the reporting thresholds of open interest for members and customers in view of market risk. In addition, SGE may, whenever it deems necessary, take one or more of the following actions in conjunction with other risk control measures to warn against and mitigate risks: requiring the submission of a report; arranging a warning appointment; issuing a warning letter; issuing a censure; and/or issuing a risk warning notice.

Key consideration 19.4: An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

SGE reviews risks arising from tiered participation arrangements on a periodic or an ad-hoc basis and timely takes actions to mitigate risks identified during the review. Currently, risks most directly associated with the arrangements include: (1) failure of physical delivery due to insufficient fund in member's Cash Account or insufficient bullion in member's Bullion Account or it's customer's Bullion Account; (2) the Settlement Reserve of the member falls below the required minimum standard and the shortfall is not eliminated within the specific time limit. A member shall be liable for its default in proprietary trades. When a member is at high level of risk exposure, SGE may reduce its risk exposures by taking appropriate measures, including raising Trading Margin requirements, imposing position limits on both member seats and customers, imposing trading limits on member seats or customers, or enforcing position liquidation on member seats or customers, in accordance with the *Measures for the*

Administration of Risk Control of Shanghai Gold Exchange. The member shall be the first party to assume all liabilities for any default of brokerage trades.

In addition, SGE manages potential or actual violation risks from members or customers in the tiered participation arrangements by taking measures, such as giving a warning and initiating an investigation, in accordance with *the Enforcement Rules of Shanghai Gold Exchange* or if the violation triggers a criminal offense, referring such violation to the judicial authority to ensure the robust set of arrangement.

Principle 20: FMI links

Key Consideration 20.1: Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.

SGE has not connected with, nor does it have any linkage with, any other CCP either within or outside China. Therefore, this consideration is not applicable to SGE for the time being.

Key Consideration 20.2: The 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.

SGE has not connected with, nor does it have any linkage with, any other CCP either within or outside China. Therefore, this consideration is not applicable to SGE for the time being.

Key Consideration 20.7: Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a connection has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.

SGE has not connected with, nor does it have any linkage with, any other CCP either within or outside China. Therefore, this consideration is not applicable to SGE for the time being.

Key Consideration 20.8:Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfill its obligations to its own participants at any time.

SGE has not connected with, nor does it have any linkage with, any other CCP either within or outside China. Therefore, this consideration is not applicable to SGE for the time being.

<u>Principle 21: Efficiency and effectiveness</u>

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

SGE is committed to promoting market development and to organizing the trading of gold and other precious metals as well as providing the related services for members and investors in an efficient and cost-effective manner and on a fair, equitable, open, and good faith basis.

When making updates (or revisions) to legal documents, such as rules, procedures and agreements covering the clearing and settlement arrangement, operating structure, scope of products cleared, settled or recorded, and use of technology and procedures, SGE conducts a survey on market participants such as members, customers and Custodian Banks, invites law firms, judicial authorities, and other institutions to discuss and assess the legal issues involved, organizes discussion meetings with market participants to solicit their comments on the legal documents, and convenes the Member's Assembly to vote on such updates (or revisions) and explains and communicates relevant legal arrangements. Before promulgating and implementing such legal documents, SGE submits them to the PBC for approval or for record in accordance with regulatory requirements and discloses such legal documents on its website. In addition, SGE provides periodic training on such legal documents to members, customers, Custodian Banks, and other market participants. Moreover, SGE improves rules, business procedures and agreements for all services and products considering extensive comments on service quality and efficiency from market participants and international practices to meet the requirement of market development.

With respect to technology development, SGE conducts thorough tests on each of its businesses before launch. Such tests include development test, system test, integration test, and simulation run. SGE invites market participants such as members and Custodian Banks to participate in the integration test and simulation run. After the tests, SGE supervises the issuance of relevant testing reports for centralized management. To improve service quality and reduce operational risks, SGE offers business introduction, system impact analysis, project planning and other relevant training to market participants during the process of system building and coordinates related parties to develop and launch business according to a unified schedule.

With respect to operating structure, SGE has two data centers which are connected to members through different communication lines (including the lines of China Telecom , China Unicom and the Internet) and offer services based on transaction window to meet the requirements of network communication. See the *Guidelines for Applications for Access to the Production Line of Shanghai Gold Exchange*.

With respect to risk management, SGE, placing a high priority on safety, has established a complete effective risk-management system in reference to international standards and admitted market participants as members of the Strategic Development Committee, the Membership Committee, the Risk Management Committee, the Business Committee and the Technology Committee to ensure that SGE's core system always meets the needs of market participants. These committees play an essential role in SGE's strategy management, membership management, IT development, risk management, decision-making support, and other aspects.

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

SGE regularly convenes the Members' Assembly and the Board of Directors' meeting to lay down measurable and achievable goals. The PBC also sets targets for SGE each year. Based on its overall goals, SGE establishes a three-year business development plan to comprehensively promote its own development in terms of market service, innovation, technology, international development, and governance.

SGE sets standards for risk control and technology in accordance with PFMI, assigns the implementation of PFMI to each department and specifies targets from qualitative and quantitative perspectives on a sound and reasonable basis to provide safe and efficient CCP clearing services to market participants.

With respect to risk-management expectations, SGE has established a comprehensive risk-management framework involving multiple areas, approaches, and measures including membership admission criteria, ongoing monitoring, pre-trading risk control, daily mark-to-market, Risk Reserve, and management of violation and default to cover extreme losses arising from defaults of multiple members. Margin requirements set by SGE are adequate to cover its current and potential risk exposures of each participant at a confidence level of no less than 99%. Each day, SGE's core system supports the clearing of 1.5 million trades in deferred contracts, 50,000 trades in physical contracts, 5,000 physical deliveries on deferred contracts, 5,000 trades in spot contracts and 5,000 physical deliveries on spot contracts. The core system endorses the completion of day-end clearing within 10 minutes and financial transactions within one minute and day-end bookkeeping within two minutes. In addition, SGE has established sound emergency response measures to ensure safe and continuous operations of its systems in case of accidents and disasters. Moreover, all CCP clearing services of SGE are equipped with a highly automatic system to satisfy the prudential risk-management of market participants.

Based on protecting market security and business continuity, SGE gives priority to the development of products urgently needed by the market and then to the development of forward-looking products.

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

SGE regularly convenes the Members' Assembly and the Board of Directors' meeting to assess its operation, draft and deliberate on its business plan, development plan, foreign investment and cooperation plan. The PBC also conducts regular assessments on the performance of SGE and its senior executives. Meanwhile, SGE has the Strategic Development Committee responsible for developing SGE's long-term strategic plan, major investments, cooperation plan, and other issues; the Business Committee responsible for supervising issues related to trading activities and investigating, reviewing and solving problems during and after trading; the Technology Committee responsible for supervising and providing guidance over the establishment, security, standardization, operation and maintenance of IT and application systems; and the Membership Management Committee responsible for supervising and providing guidance over membership management and proposing recommendations on the improvement of membership management.

As an important part of its efficiency and effectiveness review mechanism, SGE regularly conducts internal and external audits. Internal audit is the comprehensive audit of SGE's business and personnel performance which is intended to enhance internal management, promote compliance operation, prevent business risks and improve operational efficiency. External audit is the evaluation of SGE's efficiency and effectiveness by external auditors including renowned accounting firms.

In addition, SGE solicits comments and suggestions from market participants before and after the launch of each business and system, and the core system has the function of monitoring various indicators. Based on the information collected from market participants and system, SGE constantly improves its efficiency and effectiveness by updating (or revising) rules, optimizing business procedures, upgrading the systems and adding new functions.

<u>Principle 22: Communication procedures and standards</u>

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

SGE's technical standards are designed and applied in conformity with internationally accepted communication standards to ensure the efficiency of trading, clearing, settlement, delivery and recording.

The fundamental communication standards between SGE's systems and those of its members and Custodian Banks are based on TCP/IP protocols. Considering the processing requirements for high frequency and low latency of price matching trading, SGE has primarily referred to internationally accepted FIX protocols, domestically accepted STEP protocols for securities trading and domestically accepted FTD protocols for futures trading when researching and developing interface protocols with its members, to ensure the compatibility of the fundamental communication programs and the efficiency of business processing between SGE's systems and those of market participants.

Trading information is transmitted between SGE's systems and China Foreign Exchange Trade System based on the IMIX Protocol and through MQ, a widely-used message-oriented middleware in industry. The IMIX Protocol, which has become an interbank market data exchange standard certified by an authoritative organization, tracks on an ongoing basis and is compatible with the ISO20022 standard.

Settlement information is exchanged between SGE's systems and the PBC's HVPS based on the communication standards for China National Advanced Payments System II (CNAPS II) and through MQ message-oriented middleware.

In addition, it is convenient to connect to any systems applying the general international communication procedures by introducing protocol conversion modules.

<u>Principle 23: Disclosure of rules, key procedures, and market data</u>

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

The website of SGE (https://www.sge.com.cn) is the designated platform for public disclosure of rules, procedures and market data related to its CCP clearing services. SGE discloses statistical data related to the listed products as well as its market reports, news and announcements, products and services, rules and procedures, investor services, and other information on its website.

SGE has adopted clear and comprehensive rules and procedures that are fully disclosed to market participants. Firstly, SGE publicly discloses business rules, operational guidelines and other relevant rules and procedures to the market participants on its website. Secondly, SGE discloses some information to members only, mainly including special sessions, technical supports, and data and information for members, to ensure that the members understand and abide by the relevant rules.

SGE sets a column called "News and Announcements" on the homepage of its website. Extremely important special events, such as the listing of Chinese Gold Panda, the release of rules for GEMS-3 and the introduction of the new generation core system, are presented on the front page of website as well as the WeChat Official Account for a certain period of time, to inform market participants and the public of SGE's products and services, system design and operation, relevant rights and obligations of participants, and other updated information, so that they are able to assess the risks of participating in the business of SGE comprehensively, timely, accurately, objectively and dynamically.

SGE frequently collects the advice of market participants through multiple channels, including Global Gold Market Summit Forum, Gold Lecture Series, Walking into SGE, Gold Knowledge Promotion in Campus, market survey, expert assessment, public consultation and market training. In order to improve risk management levels and continuously optimize CCP clearing procedures, or respond to the feedback from market participants, SGE makes adjustment to its current rules as appropriate, submits them to the PBC for approval or for record, and immediately discloses them through its official platform.

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

SGE clearly discloses the design and operation of its systems as well as the respective rights and obligations of SGE and market participants.

SGE discloses key information about its system operation to the PBC as required. Further, SGE provides market participants with technical documents in relation to launch of business, technical requirement, system access, system upgrade, etc., and makes them available to the public through its website or discloses them to its members, to inform market participants of the design and operation of its information systems. SGE makes important decisions which have a direct impact on the operation of SGE's systems in accordance with relevant rules and procedures and discloses them on the website.

Market participants' rights and obligations are clearly defined in SGE's publicly disclosed rules, procedures and agreements.

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

SGE provides market participants with necessary and appropriate documentation as well as multiple forms of training. Firstly, SGE regularly informs market participants of its updated rules to help them understand benefits and potential risks from their participation in SGE's business. Secondly, SGE holds special sessions on an ongoing basis to communicate with market participants, listen to their comments and concerns, and answer their questions. Thirdly, SGE organizes various investor education activities, including Gold Lecture Series, Walking into SGE and Gold Knowledge Promotion in Campus, to allow market participants to have a better understanding of their rights and obligations as well as risks arising from participation in the gold market.

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

SGE has established clear and detailed fee rates which are publicly disclosed on its website. SGE's adjustments to its fee rates, including the adjusted fee rates and their effective date, are disclosed in advance on website in the form of notification or announcement. SGE also discloses all current preferential policies on its website which are fairly applicable to all market participants.

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

SGE regularly discloses relevant information to the market.

SGE discloses on its website data related to the listed products as well as its market reports, news and announcements, products and services, rules and procedures, investor services, and other information. Basic data, including the trading volume, turnover, market position and delivery volume, is disclosed in the “Data” and other sections of SGE’s website on a daily, weekly, monthly and annual basis.

In addition, SGE discloses information through its WeChat Official Account, mobile application, Member Service Platform and other channels. Moreover, the English version of SGE’s rules and notifications are available at https://www.en.sge.com.cn.