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by the resolution of the Supervisory Board

of the Moscow Exchange

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**Methodology for Determining the Risk Appetite Benchmarks
of the Moscow Exchange**

Moscow, 2022

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1. General Provisions

1.1. The Methodology for Determining the Risk Appetite Benchmarks (hereinafter, the Methodology) of the Moscow Exchange has been developed as part of the risk management system of the Moscow Exchange, which combines the activities of a trade organiser and a financial platform operator. The Methodology has been developed in accordance with the Bank of Russia Ordinance No. 4791-U, dated 7 May 2018, ‘On the Requirements for Trade Organisers to Create a System for Managing Risks Related to Trading and Transactions with Their Assets and on the Requirements for Trade Organisers’ Documents Stipulating Measures to Mitigate the Said Risks and Prevent Conflict of Interest’, Federal Law No. 211-FZ, dated 20 July 2020, ‘On Financial Transactions Using a Financial Platform’ and the following internal documents:

- Rules for Managing Risks Related to the Trade Organiser's Operations;
- Rules for Managing Risks Related to the Financial Platform Operator’s Operations;
- Financial Risks Management Policy;
- Operational Risk Management Policy;
- Strategic Risk Management Policy;
- Regulatory Risk Management Policy;
- Reputational Risk Management Policy;
- Tax Risk Management Policy;
- Group Risk Management Strategy;
- Other internal documents on management of certain types of risks.

1.2. The Methodology sets a list of risk appetite indicators, rules and parameters for calculating their threshold and actual values.

1.3. The Methodology reflects a unified approach to determining the acceptability of risks for the Moscow Exchange. All management decisions at the Moscow Exchange are made taking into account the established risk appetite indicators and their threshold values. Risk appetite threshold values are taken into account at all decision-making levels when determining the approach to risk appetite cascading within the Group.

1.4. Risk appetite indicators and their thresholds are subject to update on an annual basis.

2. Terms and Definitions

Operational Risk Event Database (OREDB) is an electronic storage of information about operational risk events (hereinafter, ORE) and incidents (events) related to operational risk that did not have any consequences or negative impact on the processes of the company.

Group is the Moscow Exchange Group of Companies consisting of the Moscow Exchange, Non-banking Credit Organisation National Settlement Depository (hereinafter, NSD), Non-banking Credit Organisation National Clearing Centre (hereinafter, NCC), and National Mercantile Exchange (hereinafter, NAMEX).

Degradation is disruption of technological processes of the Group and/or those used by the Group entailing failure to provide or inadequate provision of services related to enabling financial transactions between recipients of financial services and financial institutions and issuers.

ORISBCD is the Operational Risk, Information Security and Business Continuity Department, risk management division of the Moscow Exchange.

Risk map is a representation of identified risks. A risk map includes risk assessment criteria: the level of damage from risk realisation and the probability of occurrence of a risk event within a certain period of time.

Commercial risk is a risk associated with management or operation of the company as a commercial organisation, including those that may affect performance of the functions as a trade organiser and a financial platform operator. Commercial risk implies any potential deterioration in the financial position of the Moscow Exchange (as a commercial organisation) due to the excess of expenses over income.

Compliance risk is a risk that may incur losses due to non-compliance with legislation, internal documents, standards of self-regulatory organisations (if such standards or rules are mandatory), and also as a result of the application of sanctions and/or other enforcement measures on the part of supervisory authorities. The term *regulatory risk* is used to describe compliance risks, the former being one (but not the only) component of compliance risks.

Credit risk is a risk of loss resulting from any failure to fulfil, delayed or incomplete fulfilment by the counterparty of their respective contractual obligations.

Tax risk is uncertainty as to the achievement of business goals owing to factors related to the taxation process, which may materialise as financial losses or other adverse consequences stemming from current or future events and processes in tax relations and tax accounting, or events or processes affecting tax relations and tax accounting.

Non-financial risks (hereinafter, risks) are operational risks (including the risk of information security and business continuity breach), compliance risks, including regulatory ones, reputational risks, strategic risks, project risks, legal risks and tax risks.

Trade organiser's operational risk is a risk of consequences that entail suspension or termination of the provision related to conducting organised trading in full or in part, as well as a risk of expenses (losses) as a result of failures and/or errors of software or hardware in the companies, including the software and hardware and information and communication means of communication with the help of which the organised trading is conducted, and/or in the internal business processes, errors of employees and/or as a result of external events that have a negative impact on the company's activities.

Financial platform operator's operational risk is a risk of consequences that entail suspension or termination of the provision of services in full or in part, as well as a risk of expenses (losses) for the financial platform operator as a result of failures and/or errors of software and hardware, and/or in the internal business processes, errors of employees and/or as a result of external events that have adverse impact on the financial platform operator.

For the purposes of this Methodology, the term *operational risk* includes the definitions of operational risks given by the trade organiser and the financial platform operator.

The cumulative maximum level of risks is the maximum amount of potential losses that the Moscow Exchange is prepares to bear if the risks provided for by its risk appetite are realised.

Legal risk is a risk of losses as a result of inefficient organisation of legal work leading to legal errors in the Moscow Exchange's activities due to actions of employees or management bodies; violation of contractual terms and conditions by the Group, as well as by the clients and counterparties of the Moscow Exchange; availability of contractual provisions that do not meet the rights and interests of the Moscow Exchange; imperfection of the legal system; the Moscow Exchange, its clients and counterparties being under the jurisdiction of various states.

Regulatory risk is a risk of expenses (losses) and/or other adverse consequences incurred by the Moscow Exchange owing to non-compliance of organised trading activities carried out by the Exchange on the basis of a relevant license and activities of financial platform operator carried out by the Exchange on the basis of inclusion of the Moscow Exchange in the register of financial platform operators with the Russian Federation laws regulating the activities of the Moscow Exchange, as well as with rules of organised trading, rules of financial platform as well as constituent and other internal documents of the Moscow Exchange for managing regulatory risks and/or incurred as a result of measures applied to the Moscow Exchange by supervisory bodies.

Risk is an event or condition that, if it occurs, has a negative impact on business processes, services, and clients, and also leads or may lead to potential losses in the form of loss of revenue, additional expenses or a negative impact on business reputation.

Risk appetite is the maximum amount of risks (acceptable level of risks) which the company is ready to accept to achieve its strategic objectives, expressed as a system of quantitative and qualitative indicators limiting the level of risks accepted.

Information security risk (IS) is the risk associated with the possibility of loss of IS properties (confidentiality, integrity and accessibility) by the information assets as a result of IS threats realisation.

Liquidity risk is a risk of losses resulting from failure to ensure the fulfilment of one's obligations in a timely manner and in full.

Reputational risk is a risk of consequences that entail expenses (losses) or other adverse effects as a result of a negative attitude to the trade organiser by the counterparties of the trade organiser, trading members and their clients, shareholders of the Moscow Exchange, the Bank of Russia and other parties that may adversely affect the trade organiser's ability to maintain existing business relations and/or to build new business relations and maintain continuous access to sources of funding.

Market risk is a risk of losses in on- and off-balance-sheet positions arising from movements in market parameters (interest rates, financial instruments prices, exchange rates), as well as resulting in reduced market liquidity regarding positions liquidation/restructuring.

Early Warning Signal (EWS) is the value of the interim indicator level during monitoring (to prevent breach of risk appetite), upon reaching which information is escalated to the management bodies.

Risk management system (RMS) is a set of rules, documents and measures aimed at identifying, assessing and influencing risks, as well as monitoring their condition in order to minimise financial losses due to unfavourable changes in risk factors.

Risk event is an event, situation or circumstance that is characterised by realisation (manifestation) of a risk and may be accompanied with infliction of losses on (expenses incurred by) the company.

Stress testing of non-financial risks is modelling various negative scenarios of realisation of non-financial risks that entail financial and non-financial consequences. One of the stress scenarios for operational risks of the Moscow Exchange is load testing. Assessment of stability of software

and hardware tools used to carry out activities to organise trade by the Moscow Exchange to significant changes: exceptional but plausible events related to disruption of business processes and the external environment.

Scenario analysis of non-financial risks (scenario analysis) is a specially structured forecast of losses and occurrence of operational and/or other non-financial risk events that cause it, based on the expert knowledge in the area whose risks are to be assessed. Scenario analysis includes a forecast of an operational risk event occurrence, the probability of its occurrence, assessment of the amount of possible losses within the analysed scenario. Scenario analysis can be carried out on the basis of collected data on internal and external operational risk events based on expert assessments of the results of quantitative and qualitative analysis, as well as the results of self-assessment of risks and control procedures, continuous operational control, the values of key risk indicators, internal and external audits and inspections by external supervisory authorities.

FRU is the Financial Risks Unit, risk management division of the Moscow Exchange.

Financial risks are market, credit, liquidity and market risks, including currency risk, interest rate risk of on-balance-sheet position and interest rate risk of the trading portfolio.

- 2.1. The terms not specifically defined in this section shall be used in the meanings defined by laws and other regulatory legal acts of the Russian Federation, as well as by the internal documents of the Moscow Exchange.

3. Goals and objectives of setting the maximum and cumulative maximum risk levels through defining risk appetite

- 3.1. The main goal of defining risk appetite is to ensure control over the level of risks accepted by the Moscow Exchange to achieve its business goals, form a common understanding of acceptable risks at all management levels of the Moscow Exchange, achieve strategic and operational goals and develop an efficient risk response process.
- 3.2. Risk appetite is taken into account in income and expenses planning, budgeting, developing and updating the development strategy and functional strategies of the Moscow Exchange, and managing risks as part of the main activity of the Moscow Exchange.
- 3.3. Risk appetite of the Moscow Exchange is recorded in the risk map of the Moscow Exchange which contains the cumulative (integral) indicator of risk appetite, the risk appetite indicator by types of risk and their approved values.

4. Determining the list of risk appetite indicators and the methodology for determining their threshold and actual values at Moscow Exchange

- 4.1. As part of RMS, the Moscow Exchange identifies, analyses and evaluates risks, determines significant risks, establishes a system of parameters for their measurement and monitoring, monitors their values and, if necessary, ensures risk mitigation measures.
- 4.2. For each type of significant risk, the Moscow Exchange sets the maximum level of risks, as well as the cumulative risk level (hereinafter jointly referred to as risk limits).
- 4.3. The following tasks are performed to determine the list of risks whose realisation the Moscow Exchange considers unacceptable:
 - identification of risks inherent in Moscow Exchange's activities;
 - identification of possible losses or other negative consequences as a result of materialised risks inherent in the Moscow Exchange's activities;
 - identification of expectations of heads of structural divisions and management bodies of the Moscow Exchange regarding the list of unacceptable risks;
 - forming and establishment of risk appetite, EWS and list of unacceptable risks;
 - building a system for monitoring compliance with risk appetite and controlling methods of response to unacceptable risks;
 - regular reporting based on the results of monitoring and control;
 - regular review of risk appetite and previously established list of unacceptable risks.
- 4.4. To determine the maximum risk level, as well as the cumulative maximum risk level, the Moscow Exchange uses the following methods:
 - 4.4.1. Assessment of potential consequences from risk realisation based on historical data and setting maximum values for indicators at the level of average values for several selected years;
 - 4.4.2. Identification and analysis of the most likely risk scenarios, and setting benchmark thresholds at the level of the obtained values;
 - 4.4.3. Assessment of the impact of potential losses on the financial results of the Moscow Exchange and setting risk appetite based on the size of the potential loss, in which there is no impact on the implementation of strategic initiatives of the Moscow Exchange;
 - 4.4.4. Implementation of risk stress testing for certain types of risk to establish the maximum expected losses from the materialised risks;
- 4.5. Risk appetite of the Moscow Exchange is set by the Supervisory Board of the Moscow Exchange for the next calendar period in relation to risks recognised as significant for the Moscow Exchange.

- 4.6. When determining the risk appetite, the Moscow Exchange proceeds from the concept of going concern in adverse conditions and results of scenario analysis and stress testing.
- 4.7. Threshold values of risk appetite indicators of the Moscow Exchange have qualitative and quantitative expression. The qualitative expression of risk appetite implies that risk appetite does not have clear quantitative indicators, i.e. it represents a general statement of what is permissible, acceptable or unacceptable for Moscow Exchange in pursuit of its strategy and goals.
- 4.8. The general list of risk appetite indicators for the Moscow Exchange and the methodology for determining their threshold and actual values are presented in Appendix 1.
- 4.9. In order to establish risk appetite, the Moscow Exchange defines the following set of indicators:

Credit risk:

1. Allowances for expected credit losses on securities;
2. Allowances for expected credit losses on other assets (accounts receivable, correspondent accounts, interbank loans, deposits).

Market risk:

1. VaR 99% 10D of trading portfolio – corporate securities;
2. VaR 99% 10D of trading portfolio – sovereign securities;
3. VaR 99% 10D of currency risk.

Commercial risk:

1. Underperformance of the commission income plan;
2. Underperformance of the net interest income plan.

Legal risk:

1. Losses arising from the legal risk realisation.

Tax risk:

1. Losses arising from the tax risk realisation.

Compliance (regulatory) risk:

1. Number of cases of realisation of the compliance (regulatory) risk;
2. Losses arising from the compliance (regulatory) risk realisation.

Operational risk:

1. Accessibility of real time systems;

2. Accessibility of systems ensuring other client services¹;
3. Losses arising from the operational risk realisation;
4. Number of IT incidents that lead to non-accessibility of real time systems.

Information security risk:

1. Quantity of significant IS incidents without reputational damage and service degradation/absence² not above the allowable downtime and/or degradation of the Technological Process;
2. Quantity of significant IS incidents causing reputational damage and service degradation/absence above the allowable downtime and/or degradation of the Technological Process³.

Reputational risk:

1. Burst of negative publications about the Moscow Exchange in the media;
2. Outflow of existing clients as a result of the reputational risk.

5. Determining the list of risk appetite indicators and the methodology for defining their threshold and actual values at the Group

- 5.1. The Supervisory Board of the Moscow Exchange recommends that the Supervisory Boards of the Group companies set the indicators specified in Appendix 1.
- 5.2. The Group's risk appetite is set for the horizon up to 2024 in relation to the risks recognised as significant at the Group level, which are inherent to all Group companies and are equally measured.
- 5.3. In order to establish risk appetite of the Group, it is recommended to use the following set of indicators that reflect the risk level:

Credit risk:

1. Allowances for expected credit losses on securities;

¹ The calculation includes MOEX accessibility indicators of personal account pages, Moscow Exchange website, EDI system and MOEX Treasury, Marketplace provided that the unavailability of the system entails the complete suspension of the service and the inability to provide it in an alternative way

² According to Regulation No. 779-P of 15 November 2021 "On setting mandatory requirements for non-credit financial institutions regarding operational reliability when carrying out activities specified in Part I of Article 76.1 of Federal Law No. 86-FZ of 10 July 2002 'On the Central Bank of the Russian Federation' to ensure continuity of financial services (except banking services)"

³ According to Regulation No. 779-P of 15 November 2021 "On setting mandatory requirements for non-credit financial institutions regarding operational reliability when carrying out activities specified in Part I of Article 76.1 of Federal Law No. 86-FZ of 10 July 2002 'On the Central Bank of the Russian Federation' to ensure continuity of financial services (except banking services)"

2. Allowances for expected credit losses on other assets (accounts receivable, correspondent account, interbank loan, deposits).

Market risk:

1. VaR 99% 10D of trading portfolio – corporate securities;
2. VaR 99% 10D of trading portfolio – sovereign securities;
3. VaR 99% 10D of currency risk.

Commercial risk:

1. Underperformance of the commission income plan;
2. Underperformance of the net interest income plan.

Legal risk:

1. Losses arising from the legal risk realisation.

Tax risk:

1. Losses arising from the tax risk realisation.

Compliance (regulatory) risk:

1. Number of cases of realisation of the compliance (regulatory) risk in accordance with the criteria of materiality of consequences, which the realisation of compliance risks may lead to, in order to recognise such risks as having a bearing on risk appetite;
2. Losses arising from the compliance (regulatory) risk realisation;

Operational risk:

1. Accessibility of real time systems;
2. Accessibility of systems ensuring other client services⁴;
3. Losses arising from the operational risk realisation;
4. Number of IT incidents that lead to non-accessibility of real time systems and/or other client service systems.

Information security risk:

⁴The calculation included indicators of accessibility of personal account pages, the Moscow Exchange website, EDI system and MOEX Treasury, Marketplace (for MOEX); customer interaction services (clearing terminal, WEB-clearing, EDI, SWIFT, Clearing-Clearing bank), TCS Navigator for SDFIs and NCC website, USS CCP, ProgramBank.ABS (for NCC); payment system, repository, SPFS, web-cabinets (Corporate Governance, Corporate Events, Collateral Management and Repository web-cabinets), SWIFT and NSD website (for NSD), website and personal account page (for NAMEX) provided that the unavailability of the system entails the complete suspension of the service and the inability to provide it in an alternative way

1. Quantity of significant IS incidents without reputational damage and service degradation/absence⁵ not above the allowable downtime and/or degradation of the Technological Process;
2. Quantity of significant IS incidents causing reputational damage and service degradation/absence above the allowable downtime and/or degradation of the Technological Process⁶.

Custody risk:

1. Losses arising from the custody risk realisation.

Reputational risk:

1. Burst of negative publications about the Moscow Exchange Group in the media;
2. Outflow of existing clients as a result of the reputational risk.

6. Risk appetite compliance monitoring and reporting for Moscow Exchange

6.1. Monitoring of compliance with the established quantitative and qualitative indicators of risk appetite is conducted on an ongoing basis.

6.2. The procedure for controlling risk appetite indicators includes measures to compare the results of monitoring the risk level with the established risk appetite thresholds on a daily basis. Based on the results of monitoring, the dynamics of the indicator is determined, appropriate measures are initiated in case of detection of achievement and/or breach of threshold values, and reports are prepared.

6.3. Monitoring of risk appetite compliance and the reporting is performed in accordance with Table 1:

Table 1. Area of responsibility for developing and monitoring the Group's risk appetite indicators

Body/Structural division	Area of responsibility
Supervisory Board of Moscow Exchange	Sets the composition of indicators and threshold for risk appetite of the Group and the Moscow Exchange and monitors compliance with risk appetite at the level of the Group and the Moscow Exchange, recommends indicators and their thresholds to companies in the Group. In the event of a breach of risk appetite, the Chairman of the Supervisory Board of the Moscow Exchange and the Chairman of the Risk Management Committee call for an extraordinary meeting. The Supervisory Board shall be informed by ORISBCD in case of reaching /violating the EWS or the current threshold of informing - losses in the amount of 300 million roubles and receive data on the causes of the violation and measures taken and

⁵ According to Regulation No. 779-P of 15 November 2021 “On setting mandatory requirements for non-credit financial institutions regarding operational reliability when carrying out activities specified in Part I of Article 76.1 of Federal Law No. 86-FZ of 10 July 2002 ‘On the Central Bank of the Russian Federation’ to ensure continuity of financial services (except banking services)”

⁶ According to Regulation No. 779-P of 15 November 2021 “On setting mandatory requirements for non-credit financial institutions regarding operational reliability when carrying out activities specified in Part I of Article 76.1 of Federal Law No. 86-FZ of 10 July 2002 ‘On the Central Bank of the Russian Federation’ to ensure continuity of financial services (except banking services)”

	planned to address the situation. Informing is carried out no later than one day from the date of detection.
Risk Management Committee of Moscow Exchange Risk Committee of NCC	They are informed when an early warning signal or the current notification threshold is reached (losses in the amount of 300 million roubles) and receive data on the causes for the breach of limits and actions taken and planned/regulatory measures. The Chairman of the Committee may initiate an extraordinary meeting of the Committee on the recommendation of any of its members ⁷ .
Executive Board of Moscow Exchange	Monitors compliance with the decomposition of the Group's risk appetite indicators by subsidiaries. Is informed when an early warning signal is reached and risk appetite is breached.
– Supervisory Board of NCC – Supervisory Board of NSD – Supervisory Board of NAMEX	Sets the composition of indicators and threshold for risk appetite at the individual level based considering the recommendations on decomposition of the Group's risk appetite.
– Audit Committee and Risk Committee of NCC – Audit Committee of NSD – Audit Committee of NAMEX	Are informed when an early warning signal is reached and receive data on the causes for the breach of limits and measures to address the situation. The Chairman of the Committee may initiate an extraordinary meeting of the Committee on the recommendation of any of its members ⁷ .
– Executive Board of NCC – Executive Board of NSD – Executive Board of NAMEX	Is informed when an early warning signal is reached and a breach of risk appetite is detected for the Group's company.
– Moscow Exchange Risk Management	Monitors compliance with risk appetite and limits at the Group level, ensures generation of reports on compliance with risk appetite.
– NCC Risk Management – NSD Risk Management – NAMEX Risk Management	Monitors compliance with risk appetite and limits at the solo level.

6.4. When setting risk appetite, the Moscow Exchange assesses the impact of risks for the Moscow Exchange on the financial stability by assessing potential risk event(s), the occurrence of which, considering the probability of its (their) occurrence and the degree of influence, would lead to losses for the Moscow Exchange.

6.5. The Moscow Exchange identifies risks occurrence through risk appetite indicator monitoring, the values for which are calculated on a monthly basis by the divisions responsible for managing certain types of risks and consolidated by the Operational Risk, Information Security and Business Continuity Department (ORISBCD). The employee of the structural division responsible for risk management jointly with the ORISBCD analyses cases of risk realisation, assesses the risk level, identifies the presence, causes and consequences of breaches of threshold values.

6.6. In the event of realisation of the events that resulted in EWS violation, not later than the day following the day of detection of EWS violation the ORISBCD shall generate a newsletter to the members of the Moscow Exchange Executive Board and members of the Risk Management Committee of the Moscow Exchange Supervisory Board, members of the Moscow Exchange Supervisory Board. The newsletter includes information about the undertaken and planned measures to address the situation. If the EWS indicator for the Group is reached, when the indicator for one of the companies is not violated at the

⁷ For making appropriate decisions to regulate the risk appetite indicator and prevent its breach.

same time, the Committees of the Supervisory Boards are informed (listed in Table 1), and the Supervisory Boards of the Group.

6.7. In the case of detecting the events resulting in a breach of risk appetite, not later than the day following the day of detection of risk appetite violation, the ORISBCD shall generate a newsletter to the members of the Moscow Exchange Executive Board, members of the Risk Management Committee of the Moscow Exchange's Supervisory Board, and the members of the Supervisory Board of the Moscow Exchange on realised events. The newsletter includes information about the undertaken and planned measures to address the situation. If the Risk appetite indicator for the Group is reached, when the indicator for one of the companies is not violated at the same time, the Committees of the Supervisory Boards are informed (listed in Table 1) and the Supervisory Boards of the Group.

6.8. Upon the results of monitoring of the Moscow Exchange's risk appetite the ORISBCD shall form a report to be submitted for the Moscow Exchange Executive Board on a monthly basis, and for the Risk Management Committee of the Moscow Exchange's Supervisory Board and the members of the Supervisory Board of the Moscow Exchange - on a quarterly basis. The report shall contain information on the list of risk appetite indicators, the level of risk at the reporting date, information on risk occurrences and measures to eliminate violations and reduce the level of risk (if necessary).

6.9. When detecting a breach of EWS and risk appetite, and when reducing or eliminating risks, the ORISBCD jointly with the responsible divisions shall adhere to the following procedure:

6.9.1. Determine the reason for the breach or identify factors that may contribute to the realisation of the identified risk.

6.9.2. Determine possible consequences that may arise as a result of such risk realisation.

6.9.3. Determine the list of employees of the Moscow Exchange responsible for the area of occurrence of the risk factors and the area of consequences of the risk realisation.

6.9.4. Upon the implementation of the risk, decisions are made on the measures necessary to reduce certain risks that affect the level of risks accepted by the Moscow Exchange.

6.9.5. Develop, together with the employees specified in paragraph 6.9.3, a set of measures aimed at eliminating the risk factors, or risk consequences mitigation measures, or measures aimed at eliminating the risk.

6.9.6. Agree with the heads of structural divisions of the Moscow Exchange on the timeframes and persons responsible for the implementation of such measures.

6.9.7. The ORISBCD controls timeframes and implementation of the assigned measures.

6.9.8. If necessary, the ORISBCD prepares reports on the status of implementation of the measures for the collegial management bodies of the Moscow Exchange.

6.10. In the case of realisation of related risks (where realisation of one event leads to realisation of several risks), the actual amount of losses or allowances for expected losses should be recorded as a fact for all types of related risks with the corresponding note and detailing which risk was the original source and which related risks arose.

6.11. If there is a high probability that the risk would be realised and allowances for expected losses are created, such allowances should be recorded as the actual value of risk appetite in the period in which they were created, not as an accumulated total. The accumulated total is recorded for the values of allowances for expected losses for the year. Additionally, the report records the status of all created allowances for expected losses that were previously reflected in the report on compliance with the threshold values of risk appetite benchmarks.

6.12. In respect of risks recognised as significant, the Moscow Exchange develops internal documents, and a plan of efforts to mitigate or eliminate such risks (hereinafter, the action plan), and ensures that the action plan and its implementation procedure are communicated to the authorised management bodies of the Moscow Exchange.

6.13. The Moscow Exchange regularly reviews risk-appetite indicators and their threshold levels at least once a year for indicators.

6.14. An extraordinary revision of individual indicators, methods of their calculation and/or threshold levels of indicators is possible in the following cases:

- when there are objective reasons for the violation of the risk appetite indicator, for example, when market conditions change;
- when making changes to the Development Strategy of the Moscow Exchange and/or Group companies, or to the Risk Management Strategy;
- upon the recommendation of the members of the Supervisory Board of the Moscow Exchange.

6.15. When assessing the efficiency of risk management, an analysis of the effectiveness of the activities to identify risks, eliminate breaches and/or implement other measures to reduce or eliminate such risks is performed.

6.16. The procedure for monitoring compliance with the procedure for detecting breaches of risk limits includes independent inspections of the Internal Audit Service (IAS) at least once every three years.

7. Risk appetite compliance monitoring and reporting for the Group

7.1. Each Group company sets its own risk appetite threshold values, which are approved by the Supervisory Board of the respective Group company. The Group's risk appetite threshold values are approved by the Supervisory Board of the Moscow exchange.

7.2. The procedure for establishing the Group's risk appetite includes the following steps:

- 7.2.1. Identification of risks that are significant at the level of each individual company and the entire Group;
- 7.2.2. Determining the composition and thresholds of indicators that will be included in the Group's risk appetite;
- 7.2.3. Decomposition of the Group's risk appetite indicators into individual companies within the Group;
- 7.2.4. Determining the composition and thresholds of indicators that will be included in the Group companies' risk appetite in addition to the decomposed portion of the Group's risk appetite.

7.3. The scheme of escalation of information about risk appetite is reflected in Table 1. The Moscow Exchange aggregates risk appetite reporting of the Group companies for the purpose of providing it to the authorised management bodies of the Moscow Exchange.

7.4. Regular reporting on compliance with risk appetite is submitted to the Executive Boards of the Group companies on a monthly basis, to the Risk Management Committee of the Supervisory Board of the Moscow Exchange/Risk Committee of the NCC Supervisory Board and to the Supervisory Boards of the Group companies on a quarterly basis.

Appendix 1

The general list of risk appetite indicators and the methodology for determining their threshold and actual values

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
OPERATIONAL	Accessibility of real time systems	The actual value of the system accessibility indicator is calculated in accordance with the Methodology for Presenting Information on Emergency Situations. The calculation of the actual value of the system accessibility indicator takes into account all suspensions of trading that occurred during the reporting period, as registered in OREDB.	An early warning signal is established on the basis of historical events associated with non-accessibility of real time systems, as registered in OREDB.	The risk appetite value is determined on the basis of the worst-case scenario (set of events) associated with non-accessibility of real time systems in accordance with the Methodology for Presenting Information on Emergency Situations over a 5-year horizon (historical minimum).
	Accessibility of systems ensuring other client services ⁸	The actual value of the indicator includes all interruptions in the operation of systems ensuring other client services during the reporting period, as registered in OREDB ⁹ .	The early warning signal is set based on historical events associated with interruptions in the operation of systems ensuring other client services, as registered in OREDB.	The risk appetite value is determined based on the worst-case scenario (set of events) associated with the interruption in the operation of systems ensuring other client services, as registered in OREDB.
	Losses in case of operational risk realisation	The actual value is calculated based on the losses ¹⁰ actually registered in OREDB in accordance with the Operational Risk Management Policy as the cumulative financial consequences (direct and potential losses) of operational risk events, reflected in the accounts of allowances and accounting losses.	The early warning signal is set on the basis of historical losses registered in OREDB and the assessment of potential losses from events registered in OREDB in accordance with the Operational Risk Management Policy.	The risk appetite value is set based on the worst-case scenario for the current reporting year (where the capital will decrease as much as possible due to the payment of dividends) and is calculated as the maximum value of the expected loss from the operational risk events, at which the value of ECAR (the standard of the trade organiser's equity capital adequacy ratio), determined in accordance with the Bank of Russia Ordinance No. 4824-U, dated 18 June 2018, 'On the Value and Methodology for

⁸ Criteria for selecting systems to calculate the risk appetite indicator "Accessibility of other client services":

- 1) Systems, facilitating client services which are significant for individual clients/trading members/issuers
- 2) Systems, facilitating client services which interruption may involve reputational risks through demand for such services from individual clients/trading members/issuers

⁹ Calculations include the availability indicators for MOEX: Personal Accounts, the Moscow Exchange website, the EDO system, MOEX Treasury, Marketplace; for NCC: customer interaction services (Clearing Terminal, WEB Clearing, EDO, SWIFT, Client Clearing Bank, TCS SPFI Navigator, the NCC website, USS CCP, ProgramBank.ABS; for NSD - Payment system, Repository, SPFS Web cabinets (Corporate Governance, Corporate Event, Collateral Management, and Repository web-cabinets), SWIFT and NSD website, for NAMEX - website and personal account, provided that the unavailability of the system entails a complete suspension of the service and the impossibility of providing it in an alternative way

¹⁰ Operational risk event losses recorded on accounting books in the current period, which relate to the previous reporting period, are factored into the risk appetite indicators of the reporting period the operational risk event relates to. Whereby, the report for the previous reporting period is not reapproved. Information on changes that affected the risk appetite of the previous reporting period is included in the report for the current reporting period and approved by the authorized collegial body within the current report. The indicator factors into loss from non-financial risk materialization not covered by values of loss from legal, regulatory and tax risks.

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
				Determining the Trade Organiser’s Equity Capital Adequacy Ratio’, will be below 110%.
	Number of IT incidents resulting in non-accessibility of real-time systems	The actual value is calculated based on OREs actually registered in OREDB under the category “Software and hardware failures” that led to the suspension of the provision of services to clients.	The early warning signal is set based on historical events, as registered in OREDB. OREs under the category “Software and hardware failures” that led to the suspension of the provision of services to clients	The risk appetite value is determined on the basis of the worst-case scenario (set of events) leading to the suspension of the provision of services to clients and systems over a 5-year horizon (historical minimum), taking into account the adjustment for the implementation of the Stabilisation and Reliability program.
IS RISK	1. Quantity of significant IS incidents without reputational damage and service degradation/absence not above the allowable downtime and/or degradation of the Technological Process	The actual value is calculated based on OREs actually registered in OREDB under the category “IS breach” that led to data leaks of less than 2% of clients or employees; completed attacks that did not lead to service degradation/absence not above the allowable downtime and/or degradation of the Technological Process.	The early warning signal is set expertly based on the historical values of the corresponding indicator.	The risk appetite value is determined on the basis of the worst-case scenario (set of events) associated with a breach of information security, resulting in data leakage of less than 2% of clients or employees; completed attacks that led to service degradation/absence not above the allowable downtime and/or degradation of the Technological Process.
CUSTODY	Losses in the case of the custody risk realisation	The actual value of risk appetite for the custody risk in the event of loss of assets is determined (excluding previously incurred losses /formed reserves on the commodity market) using the prices in effect on the date as of which the report is generated. Calculations include losses, inter alia those from loss, theft, deterioration of precious metals during storage and/or transportation, and acceptance of fake bullion bars.	The early warning signal is set by the Supervisory Board’s resolution. Proposals are based on projected storage volumes and loss probability statistical analysis.	The risk appetite value is set by the Supervisory Board’s resolution. Proposals are based on projected storage volumes and loss probability statistical analysis.
COMPLIANCE (REGULATORY) RISK¹¹	Number of cases of realisation of compliance (regulatory) risk, including orders to eliminate breaches ¹²	Actual value: the number of events for the reporting period is calculated in accordance with the criteria of materiality of consequences, which the realisation of compliance risks may lead to, in order to recognise such risks as having a bearing on risk appetite as per	The early warning signal is calculated expertly together with the Internal Control Service and the Internal Control and Compliance Department.	The risk appetite value is calculated together with the Internal Control Service and the Internal Control and Compliance Department.

¹¹ Due to the specific nature of the compliance risk, the parameters of risk appetite are set for compliance areas: licensed activities, anti-money laundering and countering terrorism financing (AML/CFT), FATCA/CRS, countering insider trading and manipulation, ethics/conflict of interest. At the same time, zones with zero risk tolerance are highlighted: sanctions and corruption

¹² In accordance with the criteria of materiality of the consequences as set out in “Key approaches to Compliance risk management of the Moscow Exchange” that the implementation of compliance risks may lead to, in order to recognize such risks as having an impact on risk appetite

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
		the main approaches to compliance risk management, namely: 1) violation of the law of the Russian Federation that involves pecuniary sanctions from the supervisory authorities; 2) being handed a prescription from the Bank of Russia to eliminate breaches of the legislation; 3) obtaining recommendations from the Bank of Russia as part of its oversight over the Exchange's compliance with legal requirements, containing references to specific regulatory legal acts in case the Exchange issues a motivated judgment on the assessment of existing risks.		
	Losses in the case of the compliance (regulatory) risk realisation ¹³	Actual value: the sum of cash payments made during the reporting period upon the decision of the supervisory authorities (except the Russian Federal Tax Service).	The early warning signal is calculated expertly together with the Internal Control Service and the Internal Control and Compliance Department.	The risk appetite value is calculated expertly together with the Internal Control Service and the Internal Control and Compliance Department. The amount of cash payments is calculated by the decision of the supervisory authorities for the past reporting period based on the maximum amount of the fine and with the assumption of fines in the amount of no more than 3 (depending on the area of compliance risk).
LEGAL	Losses in the case of the legal risk realisation	The actual value is calculated as the sum on claims, accepted by the courts for proceedings over the past period, assessed with a high probability of a negative outcome of the litigation, and payments as decided by the courts, and out of court so that valid claims can be satisfied.	The early warning signal is calculated expertly together with the Chief Legal Officer.	The risk appetite value is calculated expertly together with the Chief Legal Officer.
TAX	Losses arising from the tax risk realisation	The actual value is calculated on the basis of the amount of penalties charged by the Russian Federal Tax Service to MOEX, NCC and NSD and the amount in arrears and fines imposed on the NSD. The amount in areas and fines imposed on the Moscow Exchange and NCC is not included in the RA.	The early warning signal is calculated together with the Director for Taxation of the Finance Unit	The risk appetite value is calculated together with the Director for Taxation of the Finance Unit
REPUTATIONAL	Burst of negative publications about the	The actual value is determined in accordance with the Reputational Risk Management Policy.	The early warning signal is calculated expertly together with the Department for Marketing, PR and Service.	The risk appetite value is calculated expertly together with the Department for Marketing, PR and Service.

¹³ In accordance with the criteria of materiality of the consequences as set out in “Key approaches to Compliance risk management of the Moscow Exchange” that the implementation of compliance risks may lead to, in order to recognize such risks as having an impact on risk appetite

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
	Moscow Exchange Group in the media ¹⁴	The deviation for the previous reporting period in the greater direction of the number of negative publications in the media is calculated, exceeding the average value of the number of publications for the previous year by more than 70%.		
	Churn of clients as a result of reputational risk	The actual value is calculated as the share of TOP 500 clients who did not make a single transaction during the analysed period in the total volume of the Exchange clients in comparison with the same value of the previous reporting period (month) ¹⁵ .	The early warning signal is calculated as two standard deviations from the churn rate for the past 12 months.	The risk appetite value is calculated as four standard deviations from the churn rate for the past 12 months.
COMMERCIAL	Underperformance of the commission income plan ⁶	The actual value of the indicator “Underperformance of the commission income plan” is equal to the negative difference between the actual value of the annual commission income according to the management reporting data for a quarter and the planned value of commission income for the same quarter.	The early warning signal for the indicator “Underperformance of the commission income plan” is equal to the negative difference between the current forecast of the annual commission income according to management reporting data and the planned value of the annual commission income.	The value of risk appetite is calculated expertly on the basis of statistics on the revealed differences between the current forecast of the commission income according to the management reporting data and the planned value of the commission income over a 3-year horizon.
	Underperformance of the net interest income plan	The actual value of the indicator “Underperformance of the net interest income plan” is equal to the negative difference between the actual value of the net interest income according to the management reporting data for a quarter and the planned value of the net interest income for the same quarter.	The early warning signal for the indicator “Underperformance of the net interest income plan” is equal to the negative difference between the current forecast of the annual net interest income according to the management reporting data and the planned value of the annual net interest income.	The value of risk appetite is calculated expertly on the basis of statistics on the revealed differences between the current forecast of the annual net interest income according to management reporting data and the planned value of the net interest income over a 3-year horizon.
CREDIT	Allowances for expected credit losses on securities	The actual value is calculated according to the methodology set out in: – Regulation ‘On the Procedure for the Formation of Estimated Allowances for Expected Credit Losses in NCC (for the purposes of IFRS 9)’, and – Regulation ‘On the Procedure for the Formation of Estimated Allowances for Expected Credit Losses in the Moscow Exchange (for the purposes of IFRS 9)’, for non-blocked assets.	The early warning signal is calculated on the basis of the maximum projected securities portfolio volume submitted by the Treasury with higher macro-factors estimate factored into.	The value of risk appetite is calculated based on the maximum projected securities portfolio volume submitted by the Treasury factoring into security’s/issuer’s/contractor’s rating downgrading by three (3) notches, as well as taking account of higher macro-factors estimate.

¹⁴ The deviation of the value for the current quarter is calculated in comparison with the maximum of the average values for the previous 4 quarters on a 3-year horizon.

¹⁵ If these clients have shown continuous activity over the previous 12 months (i.e. they executed transactions every month). A group of clients with occasional but major transactions (e.g. one-off participation in redemption/placement transactions) is not included in the calculation.

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
	Allowances for expected credit losses on other assets (accounts receivable, correspondent accounts, interbank loans, deposits)	The actual value is calculated according to the methodology set out in: – Regulation ‘On the Procedure for the Formation of Estimated Allowances for Expected Credit Losses in NCC (for the purposes of IFRS 9)’ – Regulation ‘On the Procedure for the Formation of Estimated Allowances for Expected Credit Losses in the Moscow Exchange (for the purposes of IFRS 9)’, for non-blocked assets.	The early warning signal is calculated on the basis of the maximum projected balances submitted by the Treasury with higher macro-factors estimates factored into.	The value of risk appetite is calculated on the basis of the maximum projected volumes submitted by the Treasury factoring into contractor’s rating downgrading by three (3) notches, PD downgrading, and stage of impairment, as well as taking account of higher macro-factors estimate.
MARKET	VaR 99% 10D of trading portfolio – corporate securities	The actual value is calculated using VaR 99% over a 10-day risk assessment horizon for a sample of revaluation of the corporate securities portfolio, the revaluation is calculated based on historical changes in interest rates based on the latest available data, supplemented by data from the stress period.	The early warning signal is set as a 10-day VaR calculated for the forecast volume of the securities portfolio with the planned, supplemented by data from the period of increased volatility	The value of risk appetite is determined as a maximum of 1. movement consistent with the stress collateral scenario determined based on the NCC stress testing results; 2. 10-day VaR calculated for the projected securities portfolio volume with the maximum duration available for investments in accordance with investment mandate (for corporate issuers) or the maximum historical duration (for OFZs)
	VaR 99% 10D of trading portfolio – sovereign securities	The actual value is calculated using VaR 99 % over a 10-day risk assessment horizon for a sample of revaluation of a sovereign securities portfolio, the revaluation is calculated based on historical changes in interest rates based on the latest available data, supplemented by data from the stress period.		
	VaR 99% 10D of currency risk	The actual value is calculated using the VaR 99% over a 10-day risk assessment horizon for a sample of revaluation of an open foreign exchange position, the revaluation is calculated based on historical changes in foreign exchange rates against the rouble.	The early warning signal is set as a 10-day VaR calculated on the basis of the maximum volumes of open foreign exchange positions observed in history, taking into account the potential growth of the currency exchange rate and increased volatility of rates.	The value of risk appetite is determined based on a 10-day VaR calculated on the basis of the maximum volumes of open foreign exchange positions observed in history, taking into account the potential growth of the currency exchange rate and increased volatility of rates.
ZERO TOLERANCE INDICATORS				
IS RISK	Quantity of major IS incidents that caused reputational risks led to service degradation/absence not above the allowable downtime and/or degradation of the Technological Process.	Major IS incidents that resulted in data leaks of more than 2% of customers or employees of the Company; implemented attacks that led to service degradation/absence not above the allowable downtime and/or degradation of the Technological Process, incidents involving data of sensitive persons that resulted in reputational risks.		