

APPROVED

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Methodology for Determining the Risk Appetite Benchmarks of Moscow Exchange

Moscow, 2023

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1. General provisions

- 1.1. The Methodology for Determining the Risk Appetite Benchmarks (hereinafter, the Methodology) of Moscow Exchange has been developed as part of the risk management system of 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 Operations by the Financial Platform Operator and Digital Financial Asset Exchange Operator;
 - Financial Risk 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 Moscow Exchange. All management decisions at 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. 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 repository of information on operational risk events (hereinafter, ORE) and on incidents (events) relating to operational risk, but without having any consequences and negative effects to the company's processes.

Group is MOEX Group companies consisting of Moscow Exchange, National Settlement Depository (hereinafter, NSD), Central Counterparty 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 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 Moscow Exchange (as a commercial organisation) due to the excess of expenses over income.

Compliance risk is a risk of losses due to non-compliance with legislation, internal documents, standards of self-regulatory organisations (if such standards or rules mandatory applicable), and also as a result of sanctions and/or other enforcement measures taken by the oversight bodies. 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 business goals achievement owing to tax process related factors, 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.

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 services, whether in full or in part, and 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.

Cumulative maximum level of risks is the maximum potential loss that Moscow Exchange is ready to incur if the risks provided for by its risk appetite are realised.

Legal risk is a risk of losses as a result of inefficiently organised legal work leading to errors of law in the Moscow Exchange's activities due to actions of employees or management bodies; breaches of contractual terms and conditions by the Group, as well as by the clients and counterparties of Moscow Exchange; availability of contractual provisions that do not meet the rights and interests of Moscow Exchange; imperfection of the legal system; 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 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 Moscow Exchange in the register of financial platform operators with the Russian Federation laws regulating the activities of Moscow Exchange, as well as with rules of organised trading, rules of financial platform as well as constituent and other internal documents of Moscow Exchange for managing regulatory risks and/or incurred as a result of measures applied to Moscow Exchange by supervisory bodies.

Risk means an event or a condition that, if occurs, has a negative impact on business processes, services, and customers, and also leads or may lead to potential losses in a form of lost 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 (IS) risk 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 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 for identifying and assessing risks, influencing risks, and monitoring their condition in order to minimise financial losses due to adverse 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 Moscow Exchange is load testing. Assessment of Moscow Exchange's software

and hardware resistance to significant changes: exceptional, but believable events related to the violation of business processes and the external environment.

Non-financial risk scenario analysis (scenario analysis) is a specially structured forecast of losses and operational and/or other non-financial risk events such losses arise from, based on expertise in the area where the risks are to be assessed. Scenario analysis involves predicting the occurrence of an operational risk event, the likelihood of its occurrence, and an estimate of the amount of potential loss within the scenario under analysis. Scenario analysis can be done based on collected data on internal and external operational risk events, on expert judgement, on findings from quantitative and qualitative analysis, and on the results of risk self-assessment and control procedures, ongoing operational controls, values of key risk indicators, internal and external audits and audits by external supervisory bodies.

FRU is the Financial Risks Unit, risk management division of 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 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 Moscow Exchange to achieve its business goals, form a common understanding of acceptable risks at all management levels of 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 Moscow Exchange, and managing risks as part of the main activity of Moscow Exchange.
- 3.3. Risk appetite of Moscow Exchange is recorded in the risk map of 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, 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, 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 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 Moscow Exchange's activities;
 - identification of expectations of heads of structural divisions and management bodies of 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, 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 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 Moscow Exchange;
 - 4.4.4. Risk stress testing for certain types of risk to establish the maximum expected losses from the materialised risks;
- 4.5. Risk appetite of Moscow Exchange is set by the Supervisory Board of Moscow Exchange for the next calendar period in relation to risks recognised as significant for Moscow Exchange.

- 4.6. When determining the risk appetite, 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 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 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, Moscow Exchange defines the following set of indicators:

Credit risk:

1. Expected losses (securities, interbank loans, REPO, derivative financial instruments, deposits, loans), % of portfolio;
2. Expected losses on correspondent accounts/settlement accounts (“A” and “B” rated counterparties), % of balances;

Market risk:

1. Potential revaluation of the trading portfolio of sovereign and corporate securities under a stress scenario, % of trading portfolio;
2. VaR 99% 10D of the FX risk, % of own capital.

Commercial risk:

1. Underperformance versus commission income plan;
2. Underperformance versus net interest income plan.

Legal risk:

1. Losses from the legal risk realisation.

Tax risk:

1. Losses from the tax risk realisation.

Compliance (regulatory) risk:

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

Operational risk:

1. Real-time systems accessibility;

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

Information security risks:

1. Number of significant IS incidents that have not resulted in reputational damage² and have caused degradation/unavailability of service below the Technological Process downtime and/or degradation time allowed;
2. Number of significant IS incidents that have resulted in reputational damage and have caused degradation/unavailability of service above the Technological Process downtime and/or degradation time allowed³.

Reputational risk:

1. Customer churn 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 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. Expected losses (securities, interbank loans, REPO, derivative financial instruments, deposits, loans), % of portfolio;

¹Calculations include the availability indicators for MOEX: Personal Account pages, the Moscow Exchange website, MOEX Treasury, Marketplace, DFA Exchange Operator, provided that the unavailability of the system entails a complete suspension of the service and the impossibility of providing it in an alternative way.

²According 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)”

³According 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. Expected losses on correspondent accounts/settlement accounts (“A” and “B” rated counterparties), % of balances;
3. Potential loss on transactions with “C” rated counterparties

Market risk:

1. Potential revaluation of the trading portfolio of sovereign and corporate securities under a stress scenario, % of trading portfolio;
2. VaR 99% 10D of the FX risk, % of own capital.

Commercial risk:

1. Underperformance versus commission income plan;
2. Underperformance versus net interest income plan.

Legal risk:

1. Losses from the legal risk realisation.

Tax risk:

1. Losses from the tax risk realisation.

Compliance (regulatory) risk:

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

Operational risk:

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

Information security risks:

⁴Calculations include the availability indicators for MOEX: Personal Account pages, the Moscow Exchange website, MOEX Treasury, Marketplace, DFA Exchange Operator; for NCC: customer interaction services (Clearing Terminal, EDO, SWIFT, SPFS), TCS SPFI Navigator, the NCC website; for NSD – Web-Client (Corporate Governance, Corporate Event, Collateral Management, and Repository web-clients), web-client of banking services, Integration Gateway, FTR, SPFS, 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.

1. Number of significant IS incidents that have not resulted in reputational damage⁵ and have caused degradation/unavailability of service below the Technological Process downtime and/or degradation time allowed;
2. Number of significant IS incidents that have resulted in reputational damage and have caused degradation/unavailability of service above the Technological Process downtime and/or degradation time allowed⁶.

Custodial risk:

1. Share of vault precious metals (gold) as a percentage of total precious metals (gold).

Reputational risk:

1. Number of negative newsworthy events causing negative stories in mass media/social networks about MOEX Group;
2. Customer churn as a result of the reputational risk.

Strategic risk:

1. Ensuring compliance with the strategic directives outlined in the Strategy of MOEX Group.

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

Corporate body/Structural division	Area of responsibility
Supervisory Board Moscow Exchange	Sets the composition of indicators and threshold for risk appetite of the Group and Moscow Exchange and monitors compliance with risk appetite at the level of the

⁵According 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)”

⁶According 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)”

	Group and 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 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 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	Are informed when an early warning signal is reached/breached and receive data on the causes for breaching 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.
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, Moscow Exchange assesses the impact of risks for 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 Moscow Exchange.
- 6.5. 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). An employee of the structural division responsible for risk management jointly with the ORISBCD analyses risks occurred, assesses the risk level, checks for threshold breaches, the reasons for and consequences from such breaches.
- 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 Executive Board and members of the Risk Management Committee and members of the Supervisory Board of Moscow Exchange. The newsletter includes information about the

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

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

- 6.7. Should events resulting in a breach of risk appetite be detected, 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 Executive Board of Moscow Exchange, members of the Risk Management Committee and members of the Supervisory Board of Moscow Exchange on the 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 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 and the members of the Supervisory Board of 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 cause for the breach or identify factors that may contribute to the realisation of the identified risk;
 - 6.9.2. Identify the possible consequences that may arise from such a risk;
 - 6.9.3. Determine the list of employees of Moscow Exchange responsible for the area of risk factor occurrences and risk realisation consequences;
 - 6.9.4. If a risk occurs, decisions are made as to the measures necessary to mitigate certain risks that affect the level of risks accepted by Moscow Exchange;
 - 6.9.5. Develop, together with the employees named 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 Moscow Exchange on the timeframes and persons responsible for the implementation of such measures.
 - 6.9.7. The ORISBCD controls the 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 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, 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 Moscow Exchange.
- 6.13. 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 Moscow Exchange and/or Group companies, or to the Risk Management Strategy;
 - upon the recommendation of the members of the Supervisory Board of Moscow Exchange.
- 6.15. When assessing the risk management effectiveness, an analysis of the effectiveness of the activities to identify risks, eliminate breaches and/or implement other measures to mitigate 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 years⁸.

⁸Unless otherwise required by Bank of Russia regulations.

7. Risk appetite compliance monitoring and reporting for the Group

- 7.1. Each Group company sets its own risk appetite threshold values which are adopted by the Supervisory Board of the respective Group company. The Group's risk appetite threshold values are set by the Supervisory Board of 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.
- 7.4. Moscow Exchange aggregates risk appetite reporting of the Group companies for the purpose of providing it to the authorised management bodies of Moscow Exchange.
- 7.5. 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 Moscow Exchange/Risk and Audit Committee of the NCC Supervisory Board and to the Supervisory Boards of the Group companies on a quarterly basis.

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

TYPE OF RISK	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
OPERATIONAL	Real-time systems accessibility	The actual value of the system accessibility indicator is calculated in accordance with the Key Systems Reliability Indicators Calculation Methodology of Moscow Exchange. 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.	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 on the basis of the worst-case scenario (set of events) associated with non-accessibility of real time systems in accordance with the Key Systems Reliability Indicators Calculation Methodology over a 5-year horizon (historical minimum).
	Accessibility of systems ⁹ ensuring other client services ¹⁰	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.	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 from the operational risk realisation	The actual value is calculated based on the losses actually registered in OREDB ¹¹ 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 as a share in the Group's IFRS capital.	The risk appetite value 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 as a share in the Group's IFRS capital.
	Number of IT incidents preventing access to real-time systems	The actual value is calculated based on OREs actually registered in OREDB under the category	The early warning signal is set based on historical events, as registered in OREDB. OREs under the category	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

⁹Criteria 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.

¹⁰Calculations include the availability indicators for MOEX: Personal Account pages, the Moscow Exchange website, MOEX Treasury, Marketplace, DFA Exchange Operator; for NCC: customer interaction services (Clearing Terminal, EDO, SWIFT, SPFS), TCS SPFI Navigator, the NCC website; for NSD – Web-Client (Corporate Governance, Corporate Event, Collateral Management, and Repository web-clients), web-client of banking services, Integration Gateway, FTR, SPFS, 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.

¹¹Operational 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.

TYPE OF RISK	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
		“Software and hardware failures” that led to the suspension of the provision of services to clients.	“Software and hardware failures” that led 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 programme.
IS RISK	Number of significant IS incidents that have not resulted in reputational damage and have caused degradation/unavailability of service below the Technological Process downtime and/or degradation time allowed	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.
CUSTODIAL	Share of vault precious metals (gold) as a percentage of total precious metals (gold).	The actual value is calculated as the ratio of the volume of precious metals (gold) in RUB stored in bank vaults with internal rating at least B1 and/or internal rating of AA(ru) ¹² , as well as in ROSINCAS, Goznak to the sum of the volume of precious metals (gold) stored in RUB in bank vaults and the volume of precious metals (gold) stored in RUB in non-bank vaults.	The early warning signal determines a remaining expected maximum possible portion for non-bank vault storage services usage required for operating activities, given the precious metals (gold) market growth plans. It will be regarded as a breach if the breach continues for five working days (given the time required to transport precious metals (gold) from non-bank vaults to bank vaults and make the indicator stabilised).	The risk appetite value determines a remaining maximum possible portion for non-bank vault storage services usage required for operating activities, given the precious metals (gold) market growth plans. It will be regarded as a breach if the breach continues for five working days (given the time required to transport precious metals (gold) from non-bank vaults to bank vaults and make the indicator stabilised).
COMPLIANCE (REGULATOR Y) RISK¹³	Number of compliance (regulatory) risk occurrences ¹⁴	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 expertly together with the Internal Control Service and the Internal Control and Compliance Department.

¹²assigned by a rating agency accredited by the Bank of Russia.

¹³Due 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

¹⁴In accordance with the consequences materiality criteria as set out in “Key approaches to compliance risk management of Moscow Exchange” that the implementation of compliance risks may lead to, in order to recognise such risks as having an impact on risk appetite.

TYPE OF RISK	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
		the main approaches to compliance risk management, namely: violation of the law of the Russian Federation that involves pecuniary sanctions from the supervisory authorities; being handed a prescription from the Bank of Russia to eliminate breaches of the legislation; 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 judgement on the assessment of existing risks.		
	Losses from the compliance (regulatory) risk realisation ¹⁵	The 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 from 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 as a share of the Group's capital according to IFRS.	The risk appetite value is calculated expertly together with the Chief Legal Officer as a share of the Group's capital according to IFRS.
TAX	Losses from the tax risk realisation	The actual value is determined as tax arrears subject to withholding as a withholding agent and the amount of penalties from tax arrears as a taxpayer and a withholding agent for MOEX and NCC, and for NSD: the amount of tax arrears, penalties and fines.	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	Number of negative newsworthy events causing negative stories in mass media/social	The actual value is determined as the number of negative newsworthy events causing negative stories in mass media/social networks about MOEX Group.	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.

¹⁵In accordance with the consequences materiality criteria as set out in “Key approaches to compliance risk management of Moscow Exchange” that the implementation of compliance risks may lead to, in order to recognise such risks as having an impact on risk appetite.

TYPE OF RISK	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
	networks about MOEX Group	A newsworthy event is taken into account if two or more media outlets/social networks from the list of mass media/social networks to be monitored has published/reposted the news.		
	Customer churn as a result of the 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). ¹⁶	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 versus commission income plan	The actual value of the indicator “Underperformance versus 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 versus 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 versus net interest income plan	The actual value of the indicator “Underperformance versus 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 versus 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.
STRATEGIC	Ensuring compliance with the strategic directives outlined in the Strategy of MOEX Group	The actual value of this indicator is determined as an average value of portions of each of the strategic directions fulfilment stated in the Group Strategy and approved by the Supervisory Board of Moscow Exchange.	The early warning signal is calculated jointly with the Department for Strategy and International Development based on the values stated in the MOEX Group’s Strategy.	The risk appetite value is calculated jointly with the Department for Strategy and International Development based on the values stated in the MOEX Group’s Strategy.
CREDIT	Expected losses (securities, interbank loans, REPO, derivative financial instruments, deposits, loans), % of portfolio	The actual value is calculated by the formula $EL = \frac{\sum PD * LGD * EAD}{\sum EAD}$, % of portfolio, where PD is a weighted average probability of default over a one-year horizon for assets; LGD is a weighted average loss at default;	The early warning signal is determined based on historical data and projected (business plan) investment portfolio provided by the Treasury.	The risk appetite value is determined based on historical data and projected (business plan) investment portfolio provided by the Treasury given a 20% margin from the “yellow” zone.

¹⁶If 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.

TYPE OF RISK	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
		EAD is value of investments given the collateral, including counterparty risk on financial derivative instruments. PD, LGD and EAD values are calculated in accordance with the 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)”.		
	Expected losses on correspondent accounts/settlement accounts (“A” and “B” rated counterparties), % of balances	The actual value is calculated by the formula $EL = \frac{\sum PD * LGD * EAD}{\sum EAD}$, % of balance volume, where PD is a weighted average probability of default over a one-year horizon for correspondent accounts; LGD is a weighted average loss at default; EAD is a balance on correspondent/settlement account. PD, LGD and EAD values are calculated in accordance with the 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)”.	The early warning signal is determined based on historical data and projected (business plan) balance value.	The risk appetite value is determined based on historical data and projected (business plan) balance value at non-optimal placement of balances.
	Potential losses on transactions with “C” rated counterparties	The actual value is calculated as maximum possible loss on all counterparties internally rated “C” in a counterparty default stress scenario vein correlation.	The early warning signal is determined based on the current international business development plans to achieve the MOEX Group's Strategy.	The risk appetite value is set based on the international business development plans to achieve the MOEX Group’s Strategy given the reserve for new country counterparties and potential currency revaluation.
MARKET	Potential revaluation of the trading portfolio of sovereign and corporate securities under a stress scenario, % of trading portfolio.	The actual value is determined based on scenario analysis of change in yields for various stress historical periods. Expected losses on the securities portfolio are calculated.	The early warning signal is set basing on the size of the planned portfolio in 2024 assuming the risk remains the same in relation to 2023.	The risk appetite value is set with a ~10% margin to the “yellow” zone”.
	VaR 99% 10D of the FX risk, % of own capital	The actual value is set based on the metric of VaR 99% over a 10D open currency position revaluation risk assessment horizon.	The early warning signal is calculated as the currency risk exposure of Moscow Exchange, NCC and NSD set for the EWS purposes in relation to the total amount of own funds.	The risk-appetite value is calculates as the total FX risk appetite of Moscow Exchange, NCC and NSD in relation to the total amount of own funds.

TYPE OF RISK	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
			<p>For NCC it is determined as VaR 99% 10D for the open foreign-currency position = 8% of own funds cumulative total for all currencies.</p> <p>NSD retains the EWS value set for 2023, taking into account the conversion into % of own funds.</p> <p>For Moscow Exchange there is a minor increase in EWS from 2023 due to currency risk management plans for projected cash flows.</p>	<p>For NCC it is calculated as VaR 99% 10D for the open foreign-currency position = 9% of own funds cumulative total for all currencies.</p> <p>NSD retains the risk appetite set for 2023, taking into account the conversion into % of own funds.</p> <p>For Moscow Exchange there is a minor increase in EWS from 2023 due to currency risk management plans for projected cash flows.</p>
ZERO TOLERANCE INDICATORS				
IS RISK	Number of significant IS incidents that resulted in reputational damage and caused degradation/unavailability of service above the Technological Process downtime and/or degradation time allowed.	Significant 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 acceptable downtime and/or degradation of the Technological Process, incidents involving data of sensitive persons that resulted in reputational risks.		