

APPROVED

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of the Moscow Exchange

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

Moscow, 2021

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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), National Mercantile Exchange (hereinafter, NAMEX) and MB Innovatsii Limited Liability Company (OOO).

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 the area of 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 maximum risk level is the maximum acceptable risk level that the Moscow Exchange is ready to accept to achieve its strategic goals. The maximum risk level is set as the threshold value of the indicators measuring it as part of risk appetite.

The cumulative maximum level of risks is the maximum amount of potential losses that the Moscow Exchange may incur 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.

Strategic risk is a risk that may incur expenses (losses) as a result of making erroneous decisions in the course of management, including during development, approval and execution of documents which determine the directions of the Moscow Exchange development, undue fulfilment of decisions made in the process of the Moscow Exchange management, failure by Moscow Exchange's management bodies to take into account the changes in the external factors that influence or may influence the process of the Moscow Exchange management.

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 risk taken 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 resource 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 ensures taking measures to reduce risks.
- 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:
 - determining the maximum possible losses or other negative consequences as a result of realisation of all types of 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 the extent of the consequences of 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. Conducting scenario analysis for the most likely scenarios of risk realisation and setting threshold values for indicators 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. Conducting risk stress testing for certain types of risk to establish the maximum expected losses resulting from the risk realisation;
- 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 also takes into account the results of scenario analysis, and may consider the results of 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 the process of implementing its mission and achieving its 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.

Strategic risk:

1. Reduced NPV of any of high-priority profitable projects;

2. Increase in the budget of any of high-priority infrastructure projects from the date of recognition of the infrastructure project as a high priority (with a budget of more than 300 million rubles for the Moscow Exchange, 100 million rubles for the NCC, NSD and NAMEX);
3. Delays in the implementation of any of high-priority infrastructure projects or complete closure with the specified negative financial effect (except for shifts due to delays in legislative changes).

Legal risk:

1. Losses arising from the legal risk realisation.

Tax risk¹:

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 systems²;
2. Accessibility of systems ensuring other client services³;
3. Losses arising from the operational risk realisation;
4. Number of IT incidents that lead to non-accessibility of real time systems⁴.

Information security risk:

1. Number of significant (critical) IS incidents that caused reputational risks;
2. Number of minor IS incidents.

Reputational risk:

¹ As amended, effective from 2022 and beyond across the Group

² Amended name of the indicator as from 2022 and beyond across the Group. Previously - Accessibility of other client services

³ The calculation included MOEX accessibility indicators of personal account pages, the 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

⁴ Amended name of the indicator as from 2022 and beyond across the Group. Previously - Number of IT incidents that lead to non-accessibility of real time systems and/or other client service systems

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;
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.

Strategic risk:

1. Reduced NPV of any of high-priority profitable projects;
2. Increase in the budget of any of high-priority infrastructure projects from the date of recognition of the infrastructure project as a high priority (with a budget of more than 300 million rubles for the Moscow Exchange, 100 million for NCC, NSD and NAMEX);
3. Delays in the implementation of any of high-priority infrastructure projects or complete closure with the specified negative financial effect (except for shifts due to delays in legislative changes).

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 services⁵;
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:

1. Number of significant (critical) IS incidents that caused reputational risks;
2. Number of minor IS incidents.

Custody risk:

1. Losses arising from the custody risk realisation.

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 The 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 (for NCC); payment system, 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

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 together with the Chairman of the Risk Management Commission calls for an extraordinary meeting. The Supervisory Board shall be informed in case of reaching /violating the EWS or the current threshold of informing - losses in the amount of 300 million rubles and receive data on the causes of the violation and the measures taken and planned for regulation. Informing is carried out no later than one day from the date of detection.
Risk Management Commission 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 rubles) and receive data on the causes for the breach of limits and actions taken and planned/regulatory measures. The Chairman of the Commission may initiate an extraordinary meeting of the Commission on the recommendation of any of its members ⁶ .
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 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 regulatory measures. The Chairman of the Committee may initiate an extraordinary meeting of the Committee on the recommendation of any of its members ⁶ .
– 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.
– NCC Risk Management – NSD Risk Management – NAMEX Risk Management	Monitors compliance with risk appetite and limits at the individual level.
Moscow Exchange Risk Management	Monitors compliance with risk appetite and limits at the Group level, ensures generation of reports on compliance with risk appetite.

⁶ to make appropriate decisions to regulate the risk appetite indicator and prevent its breach.

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 breaches of risk limits by monitoring of risk appetite indicators, the values for which are calculated monthly 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's Executive Board and members of the Risk Management Committee of the Moscow Exchange's Supervisory Board, members of the Moscow Exchange's Supervisory Board. The newsletter includes information about the undertaken and planned minimization measures. 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.

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's 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 minimization measures. 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's 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 detected violations of risk limits and measures to eliminate them and reduce the level of risk (if necessary).

6.9. When detecting a breach of EWS and risk appetite, as well as as part of 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 measures aimed at reducing the severity of the consequences of the risk realisation, 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 performs regular control over the timeframes and fact of 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, Moscow Exchange develops internal documents, and a plan of measures for reducing or excluding such risks (hereinafter, 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 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 Group's development strategy or 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 breaches of risk limits, eliminate them 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.

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	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 ⁷ .	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 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 2020 (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 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	Number of minor ⁸ IS incidents.	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	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

⁷ the calculation included 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; for NSD - Payment system, Repository, Web cabinets, SWIFT and NSD website, for NTB - 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

⁸ minor information security incidents: incidents that are not major and leading to temporary degradation/inaccessibility of services but not entailing reputational risks and disruptions of critical business processes

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
		clients or employees; completed attacks that did not lead to the suspension of the client services provided.		data leakage of less than 2% of clients or employees; completed attacks that did not lead to the suspension of the client services provided.
STRATEGIC	Reduced NPV of any of high-priority ⁹ profitable projects ¹⁰	The actual value is determined by the formula: $(NPV_t - NPV_0) / NPV_0$, where NPV_t is not equal to NPV_0 , while: NPV_0 is the project's NPV previously approved by the Executive Board as of the beginning of the year, NPV_t is the current project's NPV approved by the Executive Board.	The early warning signal is set expertly by the Financial Unit based on the historical values of the corresponding indicator.	The risk appetite value is determined based on the worst value of the corresponding indicator.
	Increase in the budget of any of high-priority ⁹ infrastructure projects from the date of recognition of the infrastructure project as a high priority (with a budget of more than 300 million rubles for the Moscow Exchange, 100 million for NCC, NSD, NAMEX)	The actual value is determined as the ratio of the deviation of the infrastructure project budget approved by the Executive Board from the date of recognition of the project as an infrastructure one from the budget of the project on the date following the reporting quarter to the budget of the infrastructure project approved by the Executive Board from the date of recognition of the project as an infrastructure one.	The early warning signal is set expertly by the Financial Unit on the basis of the historical values of the deviation ratios of the infrastructure project budget approved by the Executive Board from the date of recognition of the project as an infrastructure one from the project budget on the date following the reporting quarter to the budget of the infrastructure project approved by the Executive Board from the date of recognition of the project as an infrastructure one.	The risk appetite value is determined on the basis of the worst value ratio of the deviation of the infrastructure project budget approved by the Executive Board from the date of recognition of the Project as an infrastructure one from the budget of the project on the date following the reporting quarter to the budget of the infrastructure project approved by the Executive Board from the date of recognition of the project as an infrastructure one (on the 3-year horizon).
	Delays in the implementation of any of high-priority ⁹ infrastructure projects or complete closure with the specified negative financial effect (except for shifts due to delays in legislative changes)	The actual value is determined in accordance with the Strategic Risk Management Policy. The period of deviation from the milestones set in the plan for the implementation of strategic projects with a period of more than 6 months is calculated.	The early warning signal is determined together with the divisions responsible for the area of risk occurrence.	The risk appetite value is calculated expertly together with the Project Management and Process Optimisation Department and with the divisions responsible for the area of risk occurrence, based on the worst case scenario over a 5-year horizon.

⁹ High-priority project is a project included in the list of high-priority projects controlled by the Supervisory Board of the Moscow Exchange. The list is approved by the Supervisory Board annually in December.

¹⁰ On the primary planning horizon, the actual NPV is compared with the approved value as of the beginning of the year.

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
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.	The early warning signal is set by the Supervisory Board's resolution.	The risk appetite value is set by the Supervisory Board's resolution.
COMPLIANCE (REGULATORY) RISK ¹¹	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 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.	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.
	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.	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).

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 that the implementation of compliance risks may lead to, in order to recognize such risks as having an impact on risk appetite

¹³ In accordance with the criteria of materiality of the consequences 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
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.	The early warning signal is calculated expertly together with the Director of the Legal Department.	The risk appetite value is calculated expertly together with the Director of the Legal Department.
TAX	Losses arising from the tax risk realisation	The actual value is calculated on the basis of the amount of penalties issued by the Russian FTS to MOEX, NCC and NSD and the amount of fines imposed on the NSD. The amount of underpayment 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 Moscow Exchange in the media ¹⁴	The actual value is determined in accordance with the Reputational Risk Management Policy. 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%.	The early warning signal is calculated expertly together with the Communications Department.	The risk appetite value is calculated as the maximum historical deviation (surge) of negative publications from the previous reporting value over a 5-year horizon.
	Outflow of existing 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 ⁷ in the total volume of the Exchange clients in comparison with the same value of the previous reporting period (month).	The early warning signal is calculated as an increase in the share of TOP 500 clients who did not make a single transaction during the analysed period ¹⁵ in comparison with the same value of the previous reporting period (month) by %, set by a separate decision of the Supervisory Board within the framework of setting the risk appetite values owing to reputational risk	The risk appetite value is calculated as an increase in the share of TOP 500 clients who did not make a single transaction during the analysed period in comparison with the same value of the previous reporting period (month) by %, set by a separate decision of the Supervisory Board within the framework of setting the risk appetite values owing to reputational risk.
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	The early warning signal for the indicator “Underperformance of the net interest income plan” is equal to the negative difference between the current	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

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 during the previous 12 months these clients had continuous activity (i.e. transactions were recorded in each month). The calculation does not take into account a group of clients with occasional, but very large transactions (for example, one-time participation in buyback/placement transactions), as well as client outflow due to license revocation.

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
		management reporting data for a quarter and the planned value of the net interest income for the same quarter.	forecast of the annual net interest income according to the management reporting data and the planned value of the annual net interest income.	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)’ – 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 calculated on the basis of the forecast volume of the securities portfolio, maximum PD and LGD values corresponding to the BB rating and stress evaluation of macro-factors	The value of risk appetite is calculated based on the forecast volume of the securities portfolio, maximum PD and LGD values corresponding to the BB rating and stress evaluation of macro-factors
	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)’	The early warning signal is calculated on the basis of the maximum recorded volumes, maximum PD and LGD values corresponding to the BB rating and stress evaluation of macro-factors	The value of risk appetite is calculated on the basis of the maximum recorded volumes, maximum PD and LGD values corresponding to the BB rating and stress evaluation of macro-factors
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 maximum duration available for investments, supplemented by data from the period of increased volatility	The value of risk appetite is determined on the basis of a loss on the securities portfolio in an instantaneous scenario of 200-550 bp movement in yields over a period of 1 to 3 years (depending on maturity and currency of denomination). The movement is consistent with the stress collateral scenario determined based on the NCC stress testing results
	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.		The value of risk appetite is determined on the basis of a loss on the securities portfolio in an instantaneous scenario of 200-550 bp movement in yields over a period of 1 to 3 years (depending on maturity and currency of denomination). The movement is consistent with the stress collateral scenario determined based on the NCC stress testing results
	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 ruble.	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	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

RISK TYPE	INDICATOR	METHODOLOGY FOR CALCULATING THE ACTUAL VALUE	THRESHOLD LEVELS	
			EARLY WARNING SIGNAL	RISK APPETITE
			of the currency exchange rate and increased volatility of rates.	growth of the currency exchange rate and increased volatility of rates.
ZERO TOLERANCE INDICATORS				
IS RISK	Number of major IS incidents that caused reputational risks	IS incidents that resulted in data leaks of more than 2% of customers or employees of the Company; implemented attacks that led to the suspension of customer services provided, incidents involving data of sensitive persons that resulted in reputational risks.		

