KELER Risk Management policy, principles and objectives, and asset-liability strategy

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1 General

1.1 The purpose of this Regulation

The purpose of this Regulation is to describe the activities, risks and risk management of KELER and to set forth the assets-liability strategy of the company at high-level.

1.2 Date of review

Within 12 months of the previous review, and in case of any material change.

1.3 Scope of policy

Subject matter: The risks assumed by KELER and the risk management principles.

Personal scope: The employees of KELER affected by the risk assumption process.

1.4 References

Related regulatory documents:

- 3-04 KELER Regulation on Risk assumption,
- 3-11 A KELER Regulation on investments,
- 3-12 A KELER Regulation on addressing extraordinary liquidity situations,
- 3-15 KELER Organizational and Operational Regulation,
- 3-18 KELER Recovery Plan,
- 4-02 KELER Regulation on Operational Risk management and KRI,
- 4-07 KELER Regulation on Asset-Liability management,
- 4-22 KELER Regulation on Client and partner rating,
- 4-30 KELER Regulation on liquidity management,
- 4-36 KELER Limit system regulation,
- 5-01 CEO Directive on risk management tasks

Relevant legislation:

- Regulation (EU) No. 909/2014 of the European Parliament and of the Council on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No. 236/2012 (CSDR);
- Commission Delegated Regulation (EU) 2017/390 of 11 November 2016 supplementing Regulation (EU) No. 909/2014 of the European Parliament and of the Council, with regard to regulatory technical standards on certain prudential requirements for central securities depositories and designated credit institutions offering banking-type ancillary services (EBA RTS);
- Commission Delegated Regulation (EU) 2017/392 of 11 November 2016 supplementing Regulation (EU) No. 909/2014 of the European Parliament and of the Council, with regard to

regulatory technical standards on authorization, supervisory and operational requirements for central securities depositories (EBA RTS);

- Regulation (EU) No. 575/2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No. 648/2012 (CRR);
- Act CCXXXVII of 2013 on credit institutes and financial enterprises;
- Act CXX of 2001 on capital markets;
- Internal capital adequacy assessment process (ICAAP), internal liquidity adequacy assessment process (ILAAP), and their audit by supervisory authorities, and business model analysis - manual of methodology for supervised institutions (ICAAP-ILAAP manual);
- MNB recommendation No. 14/2021 (XI.16.) on measuring, handling and addressing credit risks

1.5 Repealed regulatory documents

None.

1.6 Version control

Version number of this regulation: v.5.0

Version number of the previous regulation: v4.7

Entry into force of the previous regulation: 4 January 2021

1.7 Abbreviations in this regulation

ANNA	Association of National Numbering Agencies
BMA	Business Model Analysis
CSD	Central Securities Depository
EBA	European Banking Authority
ALCO	KELER Asset-Liability Committee
ESMA	European Securities and Markets Authority
EU	European Union
ICAAP	Internal Capital Adequacy Assessment Process
ILAAP	Internal Liquidity Adequacy Assessment
KB	Risk Management Committee
KELER	Central Securities Depository Ltd.
KO	KELER Controlling Department
CCP	Central Counterparty Ltd.
KKO	Risk Management Department

TRE	Treasury Group
MNB	Central Bank of Hungary
VaR	Value at Risk

1.8 Terms in this regulation

Own funds: A term as defined in 3-04 KELER Risk Assumption regulations.

2 Introduction

KELER is a central securities depository subject to the scope of CSDR, which provides in addition to basic services non-banking and banking ancillary services, therefore it is subject to the Act on credit institutions and CRR, in addition to the Act on capital markets. It plays a special role and takes a special position in the capital market, and for this reason, the risks that may emerge are also special, which is also shown in the internal regulations of KELER.

Regulations and recommendations emphasize several times, that it is important to create a risk assumption policy, asset-liability principles and strategy as regards the various relevant risks. The general risk assumption policy, asset-liability principles and risk strategy are approved by the Board of Directors of KELER by approving this Regulation, the 3-04 KELER Risk assumption regulation and the 3-11 KELER regulation on investments, which define the type and extent of risk are assumed by KELER as regards key risks. The content of this document is the highest level regulatory document containing principles and objectives.

Article 108 paragraph (1) of the Act on financial institutions provides: "The credit institution's management body in its managerial functions shall approve, periodically review and evaluate the strategies and policies for the segregation of duties in the organization and the prevention of conflicts of interest, for taking up, managing, monitoring and mitigating the risks the credit institution is or might be exposed to, including those posed by the macroeconomic environment, in which it operates in relation to the status of the business cycle". The management body with powers of control is responsible for the implementation of specific strategies and regulations, and for the risks taken by the credit institution.

This risk management policy addresses the following types of risks:

- investment risks (credit, partner, and market risks jointly),
- operational risks,
- general business risk,
- winding down or restructuring risks.

Of the key risk groups, the most significant ones are described here and this regulation does not cover further risks that may arise in addition to key risk groups mentioned above. The full list of KELER risks is set forth in 3-04 KELER Risk assumption regulation, also describing how to address them.

3 The role of risk assumption and risk management

KELER knowingly assumes certain risks in the context of core services provided by itself. Risk assumption is an integral part of the core activities of KELER. Accordingly, the purpose of the risk management -rather than minimizing risks - is to ensure that risks associated with KELER are properly identified, measured, handled and kept at bay, to ensure that the extent of these risks does not jeopardize the continuous operation.

In addition to risks associated with basic services, KELER assumes further risks as regards its non-banking and banking-type ancillary services it provides and with a view to successful financial operations. Other risks include those associated with the general operation of KELER (e.g. operational risk, general business risk, winding down or restructuring risk, compliance risk).

In accordance with the provisions of applicable laws and decrees, at least once a year, a comprehensive risk assessment must be performed in the form of a proposal for the Board of Directors, as a board with executive management power, so that it can have an overview of any changes in the risk profile of KELER, and to initiate or accept the amendments necessary in the risk management principles and methodology.

4 Asset-liability principles and strategy of KELER

The highest level of regulatory framework relating to asset-liability management at KELER is determined by the Board of Directors, by accepting the current regulation, the 3-11 KELER regulation on investments and 3-04 KELER Regulation on risk assumption. The former contains also the principles of the treasury limit system of the Board of Directors. Responsibility for decisions relating to asset-liability management lie with the ALCO, whose operation is governed by 3-15 KELER Organizational and Operational Regulation and 4-07 KELER Regulations on asset-liability management. Among others, ALCO regularly reviews the balance sheet structure, changes in the external environment, and responds to them. It monitors the KELER FX and interest rate positions, changes in key portfolios, their yields, liquidity, concentration, and their impact on profits. ALCO compares changes in portfolios, revenues and expenses with target figures, and opines on all policies and regulations relating to asset-liability management.

Responsibility for the monitoring of treasury positions, identification and measurement, addressing and monitoring of market risks is with the Risk Management Department. The KELER Risk Management Department regularly informs the Chief Risk Officer about the risks assumed by KELER and about the possible dangers. The Chief Risk Officer regularly reports to the ALCO and the Board of Directors on changes in risks. The results of treasury operations are measured by the Controlling Department.

The assets-liabilities strategy covers four key risk types:

- credit and partner risk relating to treasury operations,
- interest risks,
- FX exchange rate risks,
- liquidity and financing risks.

Statutory restrictions and conservative investment policy arising therefrom determine the key directions, which aim to ensure primarily smooth operations and smooth fulfillment of legislation obligations as regards all risks. As regards the various risks, the following procedures and methods guarantee that they are kept at a low level:

- The **credit and partner risks associated with the treasury activities** of KELER are limited by narrowing the range of partners as prescribed by legislation and partner rating, daily monitoring system on a comprehensive manner with the limit system.
- KELER applies limits for **interest rate risk**. Interest risks are measured and monitored on a daily basis. Interest risks are regularly subjected to sensitivity assessments and stress tests.
- **FX exchange rate risks** affect KELER from its proprietary FX portfolio. Among the clients' foreign currency assets placed on KELER accounts for trading purposes, the available free stock is also invested in the same currency, so they do not bear foreign exchange risk for KELER. The exchange rate risks from the net open positions are measured and monitored by the Risk Management Department, which must regularly make reports to the Chief Risk Officer and ALCO. FX exchange rates are regularly subject to sensitivity assessments and stress tests.
- Performance of tasks relating to **Liquidity Management** on a regular basis falls within the competence of TRE, as prescribed by 4-30 KELER Internal regulation on Liquidity Management. TRE has elaborated and maintains an emergency plan to address liquidity crises (3-12 KELER Regulation on addressing extraordinary liquidity situations). Liquidity risks are kept at bay by using limits, which are monitored by Risk Management Department as part of its daily routine. In addition to the above, sensitivity tests and stress tests are also regularly made to determine the extent of loss due to risks stemming from liquidity shortage.

The Regulation describes the key risk types below.

5 Key risk types

5.1 Investment risk

5.1.1 Credit and partner risk

KELER is not engaged in providing classical banking (client) credits. However, it does run credit and partner risks via its contractual partners.

Credit risks include any and all risk type, under which parties with contract with KELER (e.g. Clients using services) fail to fulfil their obligations of payment in credit or financial relations in performing their business operations (including completion of transactions), whereby KELER may sustain losses, including transaction risks as between KELER and KELER CCP. This includes the risk of transactions concluded between KELER and KELER CCP, including the credit lines provided to KELER CCP.

The Risk Management Department regularly assesses KELER partners under objective and subjective criteria and regularly monitors whether its partners are subjected to legal procedures involving restrictions on payment (bankruptcy check).

5.1.1.1 Credit and partner risk of treasury transactions

One of the group of partners carrying significant credit and/or partner risks for KELER are treasury partners. In performing its treasury activities (liquidity management and investment), KELER enters into securities sale and purchase transactions, interbank transactions (including interbank depositing, taking credits and repo transaction), and to a limited extent, FX conversion transactions. The risks associated with the treasury activities of KELER are limited by narrowing the range of partners as prescribed by legislation and partner rating, daily monitoring system, and the limit system on a comprehensive manner. Such limitations include Article 46 of CSDR, which provides that the central depository must place its funds and financial assets at central banks, approved credit institutions or approved central depositories.

The methodology of partner rating and the relevant limit system is performed as approved by the ALCO, which is described in detail in 4-36 KELER Limit system regulation and 4-22 KELER Client and partner rating regulation. The principles are defined by the Board of Directors, by accepting 3-04 KELER Regulation on risk assumption. The findings of the rating system and the treasury limits imposed by the Board of Directors are regularly communicated to the Board of Directors[1].

The annual rating is based on the data of the audited balance sheet and the profit and loss account (equipped with auditor’s opinion and report), supplemented with other publicly accessible data (e.g. disclosure, evaluation of external credit rating agencies). The proposal prepared in reliance on the annual rating constitutes the basis for ALCO to determine the rating category of the various partners, which clearly defines the extent of partner limits. In the period between ratings, the operation of treasury partners must be continuously monitored.

5.1.1.2 Credit risks of CSD links and account management institutions

On account of its participation in international transactions (cross border transactions), KELER maintains contact with a number of institutions of various types, whereby it is exposed to them. To complete international securities transactions, KELER creates CSD links, and opens FX accounts at foreign institutions to effect the financial part of these transactions.

When selecting CSD links, account management institutions, the most important consideration is to ascertain their reliably and stable background and good reputation. In addition to the usual data, ratings will take into account, where appropriate, the result of the Partner Evaluation Questionnaire

[1] The annual treasury limit system is revised in the form of an information sheet.

and the external credit rating of the country where the institution is established.

5.1.1.3 Credit risk relating to shareholdings

KELER has a qualified majority (99.81%) in KELER CCP.Pursuant to Article 46 paragraph (4) of CSDR, shares will not be taken into consideration for the calculation of the own funds of KELER. It constitutes the most prudential treatment of exposures for capital adequacy purposes. (In principle, there may emerge a degree of uncovered position greatly surpassing the sum of this investment, for which KELER is not legally bound to be liable in legal terms). In addition to KELER CCP, KELER has a limited shareholding in the international organization of ANNA security code issuance organisations, which will not be taken into account for the purposes of own funds.

Direct risks as regards KELER CCP are also monitored by KELER. Risks relating to KELER CCP must be assessed regularly (once every year, within the annual comprehensive risk assessment and once in performing the regular annual rating).

5.1.1.4 Intraday credit risk

KELER provides a fully collateralized intraday credit line. The purpose of the intraday credit line is to facilitate a smooth settlement of transactions accounted by KELER CCP.

An intraday credit risk emerges in relation to the credit line, which is handled individually subject to continuous monitoring.

The Risk Management Department measures and monitors movements in credit risk exposures arising from changes of intraday portfolios in relation to CSD links and account management institutions on a daily basis.

5.1.1.5 Credit risks relating to off-balance sheet exposures

KELER maintains a member credit line for KELER CCP. From accounting point of view, the credit lines are treated off-balance sheet. The rules relating to the inclusion of off-balance sheet into the balance sheet are set forth in the CRR.

5.1.1.6 Concentration risk of the provision of credits

The concentration risks relating to credits means distribution of receivables from various clients and commercial partners, whereby nonperformance by a relatively small or larger group of clients/partners, due to the same reason(s), jeopardizes the proper and continuous business operation of the institution (with usual and expectable revenues).

KELER has identified credit concentration risks in the following areas:

- concentration of interbank treasury transactions,
- concentration of investments,
- concentration of exposures to CSD links and foreign exchange account management institutions and a resulting country risk concentration,
- concentration of exposures to KELER CCP.

Risks are measures and handled in accordance with the principles of 3-04 KELER Regulation on risk assumption.

5.1.1.7 Country risk

KELER's exposures to foreign partners emerge primarily due to participation in international transactions (cross-border transactions).

KELER continuously monitors changes of its exposures to country risks and, if necessary, creates capital requirement.

5.1.2 Market risk

Market risks include the risk of loss incurred by KELER from changes in market prices. Market risk means risks relating to interest-bearing assets, shares, indices and may also include FX exchange rate risk and commodity risk. Of the above, KELER runs the risk of interest rate risk and to a limited extent FX exchange rate risks.

5.1.2.1 HUF interest risk

A significant proportion of (financial) assets and liabilities of KELER carry HUF interest risks. Interest rate risk means the possible unfavorable impact of market interest rates to the financial status and interest profits of the institution. The sources of interest rate risks include:

- **Repricing risk:** the risk arising from changes in the revaluation structure of assets and liabilities and off-balance sheet items over time, which includes the risk of changes in the shape and slope of the yield curve,
- **Base risk:** the risk arising from a change in the relationship or correlation between two instruments underlying the pricing of assets, liabilities and off-balance sheet items, or between changes in the price of the priced item and the interest rate of the instrument,
- **Option risk:** the risk arising from options on the hidden or explicit characteristics of a product that affect the interest rate risk of the product.

KELER does not run base and option interest rate risk, as it does not have such products.

KELER has a special asset-liability structure. The composition of the stock of liabilities is largely given, the part of the resources beyond equity is predominantly short term foreign liabilities related to service activities. However, there is also possibility of raising funds from the Central Bank of Hungary or on the interbank market. The determination of the interest rate of the liabilities from clients is autonomous for KELER, the determination of the composition of the assets can be realized within the legal limits, but in this case the interest rates are determined by the market.

The range of assets may be freely adjusted, within the bounds of the provisions of legislation, and in line with liquidity, profitability and risk management considerations.

Interest risks are measured, handled and reported in accordance with the provisions accepted by the ALCO, which is described in detail in 4-36 KELER Limit system regulation and the 5-01 CEO Directive on risk management tasks. The principles are defined by the Board of Directors, by accepting 3-04 KELER Regulation on risk assumption. The Board of Directors receives regular updates on the operation of the method[2]. Addressing interest risks includes daily measurements, limit monitoring, reporting on the one part, and the performance of regular (quarterly) sensitivity assessments and stress tests.

5.1.2.2 FX exchange rate risks

KELER's proprietary assets denominated in FX carry FX exchange rate risks. Among the clients' foreign currency assets placed on KELER accounts for trading purposes, the available free stock is also invested in the same currency, so they do not bear foreign exchange risk for KELER.

The KELER nostro FX account balances are determined - in addition to the proprietary portfolio - by the business activity of clients using its services, and for this reason, on account of its business activities, it has no control over its nostro FX position. At the same time, it must be aware of the extent of potential losses that may arise from FX exchange rate risks in relation to its proprietary portfolio.

Risks are measured by calculating the value at risk of daily net open FX positions. The daily calculation is supplement by the preparation of sensitivity assessment performed quarterly and the analysis of the historic changes of daily VaR values relating to FX exchange rate risks.

KELER's proprietary assets denominated in FX are used only for management purposes, to converse FX funds necessary for purchasing securities, to provide conversion services relating exercising property/proprietary rights relating to securities (e.g. Interest, dividend), and to fulfill FX needs on the part of KELER CCP. TRE may enter into FX conversion transactions for the above purposes only. Treasury does not enter into FX conversion transaction for exchange rate speculation purposes.

TRE may not enter into transactions with material impact on FX net open position without the separate approval of ALCO, and so its activity has a limited control over FX exchange rate risks.

5.1.2.3 Interest and exchange rate concentration risk

The risks relating to assets subject to interest and exchange rate risks may correlate with one another (e.g. the price of various government securities may change parallel to one another to some extent). The negative impact of bonds' concentration of asset side may emerge only in a stress scenario, in ordinary circumstances, its impacts may be negligible. Using various quantitative methods (sensitivity assessments, stress tests), KELER regularly measures the extent of risk arising from such concentration in its books.

5.1.2.4 Liquidity and financing risks

The special activities of KELER and smooth implementation of transactions require the availability of liquid assets that may be utilized in a speedy manner. Partly arising from the above requirement, the range of assets that may be held by KELER is strictly determined by legislation. In addition to

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[2] It is covered in the annual comprehensive risk analysis.

constraints under legislation, in selecting financial assets to be held by it, KELER seeks to have ones that may be sold rapidly if need be, and to use them to obtain intraday liquidity. The relation to KELER CCP also has a particular role for the purposes of liquidity risks, on account of the credit lines provided.

5.1.2.5 Intraday liquidity risks

KELER provides intraday credit line to KELER CCP in accordance with Chapter 5.1.1.4 (Intraday credit risk).

An intraday liquidity risk emerges in relation to the credit line so provided, which is handled individually subject to continuous monitoring.

5.1.2.6 Market risks relating to shareholdings

On account of its shareholding in KELER CCP, KELER bears indirect market risks affecting KELER CCP to a limited extent.

KELER CCP operates a risk management and guarantee system in relation to its activities. In case of nonperformance on the part of a clearing member and energy market non-clearing member, KELER CCP must use its own capital, which has been largely provided by KELER.

KELER must regularly assess indirect risks associated with its shareholding.

5.2 Operational risks

Operational risks mean risk of loss that may arise from improper or malfunctioning internal procedures and systems, improper completion of tasks by personnel or from external events, which also covers legal risks. In accordance with the ICAAP-ILAAP manual, the KELER assesses legal and reputational risks among operational risks.

Arising from the significant role of KELER in the financial and capital market system, the company is highly exposed to operational risks. The operational risk management system covers all losses and near-losses that may arise from operational errors.

The operation of the operational risk management framework is described in the 4-02 KELER Regulation on risk management and KRI regulation.

Among operational risks, KELER focuses on the following special sources of risk:

- operational risks associated with key participants,
- operational risks related to central securities depository relationships,
- risks related to participants, central securities depositories and market infrastructures connected to KELER,
- risks associated with external service providers.

The identification of the operational risks related to the key participants ensures the smooth operation of the domestic settlement system, while the operational risks related to the central securities depository links serve the smooth settlement of international transactions. The smooth operation is also supported by the assessment designed to identify risks related to the participants, central securities depositories and market infrastructures of the system connected to KELER. KELER maintains a wide range of service providers. The risk of dependence on suppliers and their management is therefore emphasized and relevant to KELER. A significant part of the suppliers are IT service providers, from which KELER uses operational support services of its different systems. KELER measures its dependence on these suppliers, systematically classifies the risks of service providers and evaluates their performance. The failure or non-contractual performance of suppliers may also affect the core services of KELER, including the smooth handling of settlements. To manage these risks, KELER prepares business continuity and recovery plans, as well as action plans for the outage of service providers. During its outsourcing, KELER takes into account that the outsourcing of the activity may take place only so that the management and control rights remain with KELER, as KELER does not transfer its responsibility to third parties by outsourcing its activities to them. KELER has developed an indicator measuring supplier dependence. The purpose of the indicator is to limit the dependence on specific suppliers. The supplier dependency indicator is IT-oriented, but it also includes the impact of economic losses resulting from the shutdown of related business processes.

Each department of KELER has an operational risk management contact person, who is responsible for forwarding information s/he may have learnt about loss events, and key risk indicators[3] collected by its area over to the operational risk manager. In addition to these contact persons, in its regular sessions RC formulates recommendations relating to operational risk management and monitors implementation of earlier measures. The operational risk manager submits a report on a quarterly basis to RC.

The Chief Risk Officer reports on the work of the RC and operational risks to KELER's Board of Directors and informs KELER's Chief Executive Officer.

5.3 General business risks (changes in macro-economic environment and economic cycle)

The business activities of KELER - similarly to other companies - are largely influenced by macro-economic impacts. The various macro economical indices, including inflation and interests, expected and actual yields, must be taken into account primarily for the financial planning of business operations and reassessment of plans. Risks are measured and defined as part of the preparation of the strategy, by making plans alongside a number of assumed scenarios.

Monitoring and reporting of business risks fall into the scope of duties of the Controlling Department. In so doing, business plans contained in the strategy are regularly reassessed and the results are reported to the Management, and the Management also receives regular information

[3] Key risk indicator (KRI) is an index closely following risks, enabling monitoring changes in risk exposure. KRIs are regularly assessed, and RC continuously monitors their current and timely changes, and formulates recommendations on reduction of risks if need.

about costs and revenues.

5.4 Winding down or restructuring risks

Restructuring may take place when KELER is unable to include new capital to ensure compliance with the requirements set forth in Article 47 (1) of CSDR, and it is capable of operating the securities settlement system as set forth in Article A, Section 3 of the Annex to the CSDR, and is capable of providing one more fundamental service listed in Article A of the Annex to the CSDR. Restructuring is deemed to take place also when part of the authorizations of KELER under CSDR is withdrawn in accordance with Article 20 (4) of the CSDR.

Where KELER is unable to include new capital to ensure compliance with the requirements set forth in Article 47 (1) of CSDR, and it is incapable of fulfilling the definition of central depositories as per Article 2 (1) of CSDR, it means winding down of KELER's operations. Liquidation is also deemed to take place on withdrawal of the authorization of KELER pursuant to Article 20 of CSDR in full.

The procedures to be followed by KELER when performing an additional increase of capital and the plan of orderly winding down or restructuring of its services are set forth in 3-18 KELER recovery plan.

6 Recovery Plan

The KELER recovery plan defined the assets and procedures, by which KELER in its capacity as central securities depository comply with the requirements relating to the recovery plan, additional capital increase and orderly winding down or restructuring operations and services under CSDR.

An appropriate recovery plan must be prepared in accordance with the provisions of CSDR that is capable of ensuring continuity of critical operational processes, including cases where intraday liquidity and credit risks emerge as a result of providing banking-type ancillary services.

KELER, in its capacity as a central securities depository providing banking-type ancillary services, must comply with any legislation currently and subsequently in force in relation to credit institutions under Article 59 (2) of CSDR. As part of this, KELER must prepare a recovery plan capable of addressing events gravely affecting its liquidity or solvency, without using extraordinary financial governmental support, to ensure stabilization of its financial status.

With a view to ensuring compliance with the above requirements, KELER has elaborated its recovery plan (3-18 KELER Recovery Plan), which falls within the competence of the Board of Directors.