Financial Supervision Authority advisory guidelines

Stress testing

The advisory guidelines were established by the Financial Supervision Authority management board resolution no. [*no.*] of [*date*].

1. Legal authority

In accordance with Section 3 of the Financial Supervision Authority Act (hereinafter FSAA) the Financial Supervision Authority performs financial supervision in order to enhance the stability, reliability and transparency as well as efficiency of the financial sector, to reduce systemic risks and to promote prevention of the abuse of the financial sector for criminal purposes, with a view to protecting the interests of clients and investors by safeguarding their financial resources, and thereby supporting the stability of the Estonian monetary system.

Under subsection 57 (1) of the FSAA, the Supervision Authority has the right to issue advisory guidelines to explain legislation regulating the activities of the financial sector and to provide guidance to subjects of financial supervision.

2. Objective

These advisory guidelines are established for credit institutions in order to provide substance to Section 63^1 of the Credit Institutions Act and for investment firms in order to provide substance to Section § 82^2 of the Securities Market Act.

In the framework of Pillar 2, credit institutions and investment firms must use forward-looking assessment in risk management, strategic planning and capital planning. Stress testing is one possible forward-looking method, the purpose of which is to identify risk factors or events with potentially unfavourable influence and to evaluate the capability of the credit institution or investment firm to cope with the unfavourable influences. Credit institutions that use credit risk internal ratings methods must also use stress testing to test the confidence of the estimations of internal models.

The goal of these guidelines are to help understand the Financial Supervision Authority's expectations of a suitable stress testing framework and to urge credit institutions and investment firms to follow these principles in stress testing used as part of their risk management, strategic planning and capital planning.

The guidelines are to be applied proceeding from the principle of "comply or explain," according to which a credit institution or investment firm must be able, when necessary, to explain to the Financial Supervision Authority why it is not applying or only partially applying a given requirement contained in the guidelines.

The guidelines were developed based on the principles of the *Guidelines on Stress Testing* (GL32), published by the Committee of European Banking Supervision (CEBS) and the

Principles for sound stress testing practices and supervision issued by the Basel Committee on Banking Supervision.

3. Scope of application

3.1. The guidelines shall be applied to all credit institutions and investment firms as well as to consolidated groups of such institutions and companies.

3.2. The guidelines are to be applied proceeding from the principle of proportionality, according to which the methods and procedures used in risk management of the credit institution or investment firm must be in conformity with the significance of the risk in the risk profile and the type, scope and level of complexity of the activity.

4. Definitions used in the guidelines

4.1. Risk profile – a unique combination of the risks of each credit institution or investment firm stemming from the type, extent and level of complexity of its activities as well as from its operating environment.

4.2. Risk appetite – purposeful intention on the part of a credit institution or investment firm to take risk.

4.3. Risk management – all types of defining, establishing, analysis, measurement, monitoring, hedging of risks related to the activity of a credit institution or investment firm and making of decisions on the above.

4.4. Stress test – analysis, the purpose of which is to assess the influence of unfavourable change in factors in the operating environment on the credit institution’s or investment firm’s risks and capital need.

4.5. Scenario analysis – analysis, the purpose of which is to assess the influence of a change in multiple factors in the operating environment on the credit institution’s or investment firm’s risks and capital need.

4.6. Sensitivity analysis – analysis, the purpose of which is to assess the influence of a change in an individual factor in the operating environment on the credit institution’s or investment firm’s risks and capital need.

4.7. Contingent activity plan – activity plan, the purpose of which is to define potential relevant risk mitigation actions and measures and events or conditions preceding them, which, if manifest, trigger the abovementioned actions and measures.

5. General requirements

5.1. The management board of the credit institution or investment firm shall be responsible for organizing the stress testing.

5.2. The management board of the credit institution or investment firm must be included in the stress testing process, especially in stress testing encompassing the entirety of business activity and capital planning, and must be capable of understanding the influence of unfavourable change of factors in the operating environment on the risk profile of the credit institution or investment firm, taking into account restrictions stemming from the stress testing preconditions.

5.3. The management board of the credit institution or investment firm must clearly define the responsibility for carrying out stress testing and allocate sufficient resources for this purpose.

5.4. The stress testing must be integrated with the credit institution's or investment firm's risk management framework, the functioning of which shall be supported by effective infrastructure.

5.5. The stress testing framework must enable, among other things:
1) analysis of risks at the level of portfolios, risk positions, types of risks, business lines, important business units as well as in aggregated fashion at the level of credit institution or investment firm;
2) execution of both regular and ad hoc stress tests;
3) consideration of correlations between risks.

5.6. Stress testing must be an integral part of the process of ensuring adequacy of internal capital of the credit institution or investment firm.

5.7. The stress testing framework must enable the making of relevant business and strategic decisions.

5.8. The management board of a credit institutions or investment firm shall be responsible for appropriateness of activities and measures implemented based on the stress test outcome. Relevant activities and measures shall include, *inter alia*, the following:
1) review of the limits placed on risk positions;
2) use of risk-hedging techniques;
3) review of financing policy;
4) review of capitalization and liquidity;
5) review of strategic planning;
6) review of risk appetite;
7) review or development of contingent activity plan.

5.9. The credit institution or investment firm must establish written stress testing policies and procedures.

5.10. The stress testing policies and procedures must clearly treat, among other things, the following aspects:
1) the use of different types of stress tests and their goal;
2) frequency of carrying out stress testing;
3) descriptions of methodology of stress tests, including the use of expert opinions;
4) preconditions which are used in the stress tests and which are related to business activity and management decisions.

5.11. The credit institution or investment firm must involve an independent risk control function in developing and implementing a stress testing framework.

5.12. The credit institution or investment firm must periodically evaluate the appropriateness of the organisation of stress testing, including devoting attention to the following aspects:
1) effectiveness of the stress testing and conformity to the set goals;
2) need for development;
3) level to which supervisory board and management board are informed;
4) quality of data used;
5) documentation of stress testing results.

5.13. The credit institution or investment firm must periodically review the stress testing policies and procedures and adjust them as needed, taking into account changes in their risk appetite and operating environment.

6. Scope

6.1. The credit institution or investment firm must subject to the stress testing all material risk positions arising from balance-sheet assets and off-balance-sheet obligations.

6.2. The credit institution or investment firm must conduct stress testing with regard to all material risk types and portfolios.

6.3. The credit institution or investment firm must regularly execute stress tests encompassing the entirety of business activity, not limited only to simple aggregation of stress testing of individual portfolios and risks influencing them, but must rather take into consideration also the potential connections between risks, including concentrations among risks.

6.4. Stress tests encompassing the entirety of business activity must be carried out both in consolidated fashion as well as by material business units. The stress test must, among other things, cover material business units not directly related to the primary area of activity, such as business units established for administering collateral assets.

6.5. The credit institution or investment firm must, within the process of ensuring internal capital adequacy, perform a stress test encompassing the entirety of its business activity and include all Pillar 1 risks (i.e. credit, market and operating risk) as well as the Pillar 2 risks (in particular, concentration risk).

7. Methodology

7.1. The credit institution or investment firm must use both quantitative and qualitative approaches in stress testing. Based on the principle of proportionality, the stress test may be based partially only on qualitative analysis.

7.2. An effective stress testing framework must include both sensitivity analysis of individual risk factors as well as a scenario analysis of all material risks affecting business activity in its entirety.

7.3. The credit institution or investment firm must establish all material risk factors and test their impact with varying scope and severity.

7.4. In selecting various risk factors and their severity, the credit institution or investment firm must, in addition to historical experience, also take into consideration hypothetical shocks and scenarios that take into account appropriate developments and vulnerabilities based on both the company's business activity and the financial system.

7.5. In particular, an investment firm conducting stress testing must, *inter alia*, take into consideration the possibility of market disruptions and the resulting influences on liquidity.

7.6. The selection of severity of risk factors must be in conformity with the credit institution's or investment firm's risk appetite and general strategy.

7.7. In selecting the severity of risk factors, the impact on business activity must be the primary consideration, along with the assumption that relying solely on aggregated and individual macroeconomic indicators is not sufficient for defining a change in a risk factor or scenario.

7.8. In defining a change in a risk factor or scenario with an extraordinarily unfavourable influence, an unfavourable consequence – such as a violation of prudential norms – can be used as the initial basis, and then proceed by establishing the extent of the change in the risk factor or events that could lead to such a consequence.

7.9. The credit institution or investment firm must develop relevant methods to express the changes in operating-environment factors as internal risk parameters and use the methods consistently.

7.10. If the credit institution or investment firm uses modelling in stress testing, it must take into account potential model risk. Model risk may stem, *inter alia*, from models developed for the purpose of regulative capital requirements, internal capital needs and for stress testing. Stress testing must proceed using conservatively assessed model correlations and parameters. Use of Value at Risk (VaR) type models in particular must take into consideration the model's property, in certain cases of underestimating and inadequately reflecting risks with low probability but significant potential impact.

7.11. The stress test scenario must be forward-looking, taking into account indirect and direct impacts and analysing the impact of simultaneous events on business activity in its entirety. For instance, events affecting liquidity risk may simultaneously be risk factors for trading portfolio market risk, loan portfolio credit risk and operating activity reputation risk.

7.12. The time horizon for the stress test scenario analysis must match the purpose of the stress test. The time horizon of a stress test encompassing business activity in its entirety as part of the process of ensuring internal capital adequacy must coincide with the time horizon for capital planning.

8. Outputs

8.1. The credit institution or investment firm must analyse the impact of the stress test on prudential norms as well as capital need and capital as well as liquidity as assessed in the framework of the process of ensuring internal capital adequacy.

8.2. The credit institution or investment firm must, in the framework of the process of ensuring internal capital adequacy, analyse the fiduciary activities and measures that ensure that prudential norms are complied with in the conditions of the stress test.

8.3. The precondition for trustworthiness of activities and measures is that they are to be discussed at the supervisory board and management board level, and documented as a conditional activity plan.

8.4. The credit institution or investment firm must assess the feasibility, potential influence and time and resource expenditure of the actions and measures to be applied in the conditions of the stress testing scenario.

8.5. The credit institution or investment firm must take into consideration that the feasibility, influence and time and resource expenditure of the actions and measures may materially vary from the actions and measures applied in the ordinary operating environment.

8.6. The credit institution or investment firm must analyse the stress test outputs both in the case that potential actions and measures are implemented as well as without implementation of potential actions and measures.

8.7. The credit institution or investment firm must document the methodology, preconditions and analysis results used in the stress test.

9. Entry into force of the guidelines

9.1. The Guidelines shall enter into force on 31 December 2011.