FINANSTILSYNET
THE FINANCIAL SUPERVISORY
AUTHORITY OF NORWAY

Risk-based supervision

Market Risk Module

Evaluation of management and control

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Contents

1. INTRODUCTION

Finanstilsynet uses risk modules as supervisory tools for on-site inspections as well as in the overall SREP assessment (SRV) of large financial institutions. The market risk module consists of a guideline for the assessment of the *market risk level* of a financial institution and another guideline for the assessment of the financial institution's *market risk management and control system*. This document represents the guideline for assessing management and control of market risk in an institution. When conducting an assessment it is vital to take into account the complexity and scale of operations (the proportionality principle).

This document is divided into five main sections: section 2. Strategy and overarching guidelines, section 3. Organisation and responsibilities, section 4. Measurement of market risk, section 5. Monitoring and reporting, and section 6. Independent control.

Assessment factors in this document are to some extent taken from various regulations, circulars and international recommendations and guidelines. Key documents are: "Interest rate risk in the banking book" from the Basel Committee, April 2016 (hereinafter referred to as the "Basel document"), the EBA "Guidelines on the management of interest rate risk arising from non-trading book activities" from July 2018 (hereinafter referred to as the IRRBB guidelines) and "Guidelines on common procedures and methodologies for the SREP" from July 2018 (hereinafter referred to as the SREP guidelines). The principles of the Basel document and the IRRBB guidelines deal with institutions' management of interest rate risk in the banking book. In many areas, however, the principles and recommendations will be of equal relevance for the management and control of market risk in general. The assessment factors are also based on Finanstilsynet's experience with on-site inspections.

Forms have been prepared for the assessment. Based on the factors to be assessed under each paragraph, the actual status of the institution and questions to be clarified during the inspection should be described.

Finanstilsynet's overall SREP assessment (SRV) of large financial institutions
After each institution has assessed its risk profile and capital need (ICAAP), Finanstilsynet is required to evaluate the ICAAP process and the results of this process at the individual institution (Supervisory Review and Evaluation Process – SREP). For large financial institutions, an annual overall SREP assessment (SRV) of the institution should be made. This includes an assessment of management systems and risk levels[1].

As part of the overall SREP assessment, each section of this document includes a table as a guide for the classification of the quality of risk management and control. The classification follows a four-part grading system: Good control, Satisfactory control, Less than satisfactory control and Unsatisfactory control. A grading is set for each section of the guideline. The basis for classification of sub-areas is the conclusions reached with regard to deficiencies and flaws in management and control, including issues highlighted in the preliminary report and final comments from on-site inspections in the market risk area. In the overall assessment of the management and control of market risk the focus is on material weaknesses identified in each area. No average assessment is made for the institution's total market risk area. In connection with on-site inspections, the grading is not communicated to the institutions.

Appendix 1 is a template that can form the basis for a notice of inspection, subject to institution-specific adjustments. The notice follows the same structure as this document.

[1]Reference is made to Finanstilsynet's Circular 12/2016 and the Financial Institutions Act, Section 14-6.

Relevant documents:

EBA guidelines:

- Guidelines on the management of interest rate risk arising from non-trading activities, July 2018 (EBL/GL/2018/02).
- Guidelines on common procedures and methodologies for the Supervisory Review and Evaluation Process (SREP) and supervisory stress testing, July 2018 (EBA/GL/2018/03).
- Guidelines on institutions' stress testing, July 2018 (EBA/GL/2018/04).
- Guidelines on internal governance, September 2017 (EBA/GL/2017/11).
- Guidelines on capital measures for foreign currency lending to unhedged borrowers under the supervisory review and evaluation process (SREP), December 2013.
- Draft guidelines on the treatment of CVA risk under the SREP, November 2015.
- Guidelines on the management of operational risks in market-related activities, October 2010.
- Implementation in the EU of the revised market risk and counter credit risk, Discussion paper, December 2017.

http://www.eba.europa.eu/regulation-and-policy

Basel standards:

- Standards – Interest rate risk in the banking book, April 2016.
- Fundamental review of the trading book, May 2012, October 2013 and December 2014.
- Standards – Minimum capital requirements for market risk, January 2019.
- Revision to the minimum capital requirements for market risk, consulting paper, March 2018.
- Principles for effective risk data aggregation and risk reporting, January 2013.

http://www.bis.org/bcbs/publications.htm

Circulars from Finanstilsynet

- Finanstilsynet's methodologies for assessing risk and capital needs, Circular 12/2016.
- Capital requirements for market risk, Circular 13/2014.
- Remuneration schemes in financial institutions, investment firms and fund management companies, Circular 15/2014.
- Requirements for policies and procedures for positions in the trading book for capital adequacy purposes, Circular 17/2012.
- Guidelines for stress testing and guidelines for concentration risk, Circular 18/2010.
- Guide to the regulations on risk management and internal control, Circular 3/2009.

https://www.finanstilsynet.no/regelverk/banker/?header=Rundskriv%20og%20veiledninger

2. Strategy and overarching guidelines

2.1. Strategy

The purpose of this section is to assess the institution's strategy and strategy process for the market risk area. Relevant factors to address in the assessment:

<u>Documentation and process</u>

- The institution should have a documented strategy for its operations in the market risk area. The strategy should apply on a consolidated basis and include any branches and subsidiaries. The strategy should be adopted by the board.
- The strategy should be communicated to and understood by the organisation. The strategy should be known to the relevant decision makers and personnel that possess control functions associated with the activity.
- The board should evaluate the strategy at least annually.

<u>The strategy's content</u>

- The board should clarify the purpose of the business and its market activities.
- The board should define a strategy for market risk that reflects the institution’s risk appetite in this area and is consistent with its overall risk appetite. The risk appetite should be clearly expressed and defined as a risk tolerance. Such risk tolerance could be defined in the form of loss potentials related to assigned risk capital.
- It should be clearly stated for each asset class whether the activity is intended solely to hedge customer positions or reduce risk in other ways, or whether positions are taken as part of an active trading policy to increase earnings.
- The strategy document should clarify the institution's system for managing and controlling market risk. The principles for management and control should apply on a consolidated basis, cf. principle 3 in the Basel document.
- The strategy document should clearly indicate which activities and investments are permitted, including:
    - Permitted markets/geographies
    - Permitted asset classes
    - Permitted financial instruments
- The strategy should describe the procedures for introducing and approving any new products and activities.
- The strategy should include requirements for returns where the risk does not arise from the need to reduce other risk types (e.g. liquidity risk). Best practice is to measure risk-adjusted returns to provide incentives for efficient use of capital.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	Satisfactory	Less than satisfactory	Unsatisfactory
The institution has good strategy processes. The board has defined a clear risk tolerance for market risk. In other respects a good strategy for market risk.	The institution has satisfactory strategy processes. The board has defined a relatively clear risk tolerance for market risk. In other respects a satisfactory strategy for market risk.	The institution has less than satisfactory strategy processes. The board has defined a somewhat unclear risk tolerance for market risk. In other respects a less than satisfactory strategy for market risk.	The institution has unsatisfactory strategy processes. The board has not defined a risk tolerance for market risk. In other respects an unsatisfactory strategy for market risk.

2.2. Market risk limits

The purpose of this section is to assess the risk limit structure established to manage the institution's market risk level, cf. principle 3 in the Basel document. When conducting the assessment of the established limit structure the complexity and scope of operations should be taken into account. Relevant factors to address in the assessment:

Documentation and process

- If the overall market risk limit structure does not follow from the strategy document, the institution should have a separate risk limit document setting the overall limit structure and risk level of the institution's consolidated business within the market risk area.
- The risk limits should be adopted by the board and delegated to the CEO, with clear rules for any further delegation and clear reporting lines and distribution of responsibilities.
- The limits should be reviewed at least once a year along with the strategy for market risk.

Limit structure

- The risk limit structure should be aligned with the risk tolerance approved by the board, thus ensuring that the limits are consistent with the strategy and the risk policy for market risk cf. Section 44 of the IRRBB guidelines.
    - Best practice is to express such a risk tolerance in terms of potential loss (risk *level*).
    - As supplementary limits to loss potentials, risk tolerance can be expressed in terms of exposure limits on positions, portfolios and products.
    - Risk limits should be established at the consolidated level for the institution, as well as at the solo level for associated entities if appropriate.
- The risk limit structure should be adapted to the institution’s activity and risk levels, cf. Section 30 in the Basel document.
    - Best practice is to use the limits for loss potentials (sensitivity limits from stress scenarios and any VaR limits) in overall management of market risk. In addition, nominal exposure limits should be used for positions and portfolios for the management of ongoing (daily) activities. Limits should also be set to indicate an acceptable level of volatility in net interest income (earnings) under specific scenarios.
    - For small institutions with low activity and risk levels it is possible to establish a simpler risk limit structure, primarily based on exposure limits.
    - The institution should ensure that there is consistency between the risk tolerance defined by the board and the established risk limit level.

  - The risk limit document should include definitions and descriptions of procedures for handling and approving deviations from and breaches of the limits.
- Through the established risk limit structure the board must ensure that all significant risks are controlled: equity risk, interest rate risk (including interest rate risk in the banking book), currency risk, credit spread risk, property risk, CVA risk, non-linear risks related to instruments with embedded options, etc[2].
  - In addition to limits on the maximum exposure to various asset classes (cf. the risk factor "Exposure" in the above-mentioned document), limits should be set for any risk associated with an asset mix that deviates from relevant reference values (cf. the risk factors Risk Diversification and Market Liquidity in Finanstilsynet's risk module "Evaluation of market risk level").
  - It is important to consider the institution's guidelines for aggregation of positions (offsetting procedures). If a liberal practice for offsetting has been established, gross risk limits should be established in addition to net risk limits.
  - In order to manage the interest rate risk, duration limits for various maturity bands should be established in addition to total duration limits (sensitivity to changes in interest rate/parallel shifts in the yield curve), to control the sensitivity to changes in the slope and curvature of the yield curve. If the institution engages in business in foreign currency, risk limits should be established for all major currencies where significant interest rate risk exposure is taken. For a more detailed description of the measurement and management of interest rate risk, see the IRRBB guidelines, chapter 4.4 and the Basel document, points 35 to 51.
  - Non-linear risk can be controlled by establishing limits for the sensitivity of the option's delta value to changes in the value of the underlying instrument (gamma effect) and limits for the sensitivity of the value of options to changes in the volatility of the underlying instrument (vega effect). Sensitivity to changes in the option's maturity (theta effect) and the sensitivity to changes in the risk-free rate (rho effect) may also be significant. The non-linear risk is best captured by using simulation techniques.
- Limits should be set to ensure risk diversification and limit concentration on counterparties, business sectors and geographical markets for debt and equity instruments.
- The risk limits should be consistent with the institution's general methodology for risk measurement. The methodology, including the principles for aggregation of positions, should be well documented.

Authorisation structure

- Based on the general risk limits approved by the board, the institution should in writing delegate limits and authorisations to relevant levels within the area of operation, right down to the individual desk or risk taker (broker/dealer).
- The limit structure should also be specified at lower organisational levels, for example at division level or for each business area. How positions are to be measured and controlled against established risk limits should be well documented.
- There should be procedures and authorisations for the establishment and distribution of credit lines and clearing lines for counterparties as well as credit lines/exposure limits for issuers of securities.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

[2] Relevant exposure limits are to some extent discussed in the risk module "Evaluation of market risk level".

Good control	Satisfactory	Less than satisfactory	Unsatisfactory
The institution has well-documented limits.	The institution's limits are satisfactorily documented.	The documentation of the institution's limits is less than satisfactory.	The institution does not have documented limits.
The limit setting processes are sound.	The limit setting processes are satisfactory.	The limit setting processes are less than satisfactory.	The limit setting processes are unsatisfactory.
The limit structure ensures sound management of all key risks.	The limit structure ensures satisfactory management of all key risks.	The limit structure gives less than satisfactory management of all key risks.	The limit structure does not ensure adequate management of all key risks.
The authorisation structure is good.	The authorisation structure is satisfactory.	The authorisation structure is less than satisfactory.	The authorisation structure is unsatisfactory.

2.3. Key policies

The purpose of this section is to assess the institution's guidelines for the approval of new products/activities and other key guidelines for the market risk area.

Approval of new products/services and activities
Approval of new, as well as material changes to existing, products/services and activities (e.g. trading in new financial instruments) is described in principle 1 (point 14) of the Basel document. Key factors to be addressed:

- There should be documented procedures for the approval of new products and activities, including. trading and investment in new markets and instruments. The procedure should also clearly define what is meant by a new/modified product and service.
- Approval of new products/activities should be given by the board or another relevant authority to which the board has delegated the responsibility.
- The compliance function should, in cooperation with the risk management function, ensure compliance with the procedures in the relevant area.
- As a basis for a decision to approve new products and activities, documentation should be prepared containing, as a minimum:
    - A description of the relevant product/activity.
    - A risk analysis of the product/activity and the possible impact on the institution's risk profile.
    - An assessment of human and IT resources and expertise required to establish sound and effective risk monitoring and risk management.
    - A description of the required procedures for monitoring, controlling and reporting of identified risks.
- New products should be pre-assessed and approved by the compliance function before a final decision is made.
- The risk management function should be involved in the process and, among other things, make a full assessment of the risk attending product changes, and of whether the institution is able to control and follow up new risks in an adequate manner.
- The board or other relevant authority to which the board has delegated responsibility should approve important individual measures, trading strategies and hedging strategies concerning

the institution's risk management before new products/services and activities are implemented.

Other key policies

- The institution should have written guidelines for the units that are assigned market risk limits, including management agreements with intra-group or external fund managers.
- Key policies should be approved by the board or another body to which the board has delegated responsibility. The board should ensure that policies are made known and implemented in the organisation. The policies should be regularly evaluated and revised.
- The institution should have clearly defined procedures and policies to identify, control and monitor operational risks related to market risk activities, cf. the EBA guidelines for operational risk, principle 1.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Good procedures have been established for the approval of new products. Other key policies ensure sound management of operations.	Satisfactory approval procedures have been established. Other key policies ensure satisfactory management of operations.	Less than satisfactory approval procedures have been established. Other key policies give less than satisfactory management of operations.	Unsatisfactory approval procedures have been established. Other key policies give unsatisfactory management of operations.

3. Organisation and responsibilities

3.1. Distribution of responsibilities

The purpose of this section is to assess the organisation and distribution of responsibilities within the institution’s market risk area. The assessment should take into account the complexity and scope of the business. Relevant factors to address in the assessment:

- Large institutions should have established an independent unit in the second line responsible for the design and administration of the system for managing and controlling market risk. The unit should be independent of business units with profit responsibility and should report directly to senior management and when needed also directly to the board.
- The institution should have a governance structure that effectively implements the market risk strategy. The governance structure should ensure ongoing commitment from the institution's senior management.
- The institution should clearly define the organisational unit or group/committee (such as the asset and liability committee) responsible for setting the premises for and monitoring the *overall* market risk level and the institution's financial performance**.** Entities/personnel with operative responsibility for *ongoing* management of the institution’s market risk must also be clearly defined.
- The institution should ensure that there is adequate independence and division of work in the first line between units/personnel with profit responsibility and units/personnel responsible for[3]:

[3] See Appendix 3: Operationalisation of the principle of independence.

- o Preparation and monitoring of internal policies and procedures.
- o Measurement and monitoring of risk exposure and profit.
- o Preparation of management reporting and control of the reporting data.
- o Execution of *back-office* functions such as registration, recognition and control of market data and positions.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
The governance structure ensures effective implementation of the strategy and ongoing commitment from senior management. Responsibility for risk management and performance monitoring is clearly defined. The level of independence and division of work are good.	The governance structure ensures satisfactory implementation of the strategy and ongoing commitment from senior management. Responsibility for risk management and performance monitoring is clearly defined. The level of independence and division of work are satisfactory.	The governance structure gives less than satisfactory implementation of the strategy and less ongoing commitment from senior management. Responsibility for risk management and performance monitoring is unclear. The level of independence and division of work are less than satisfactory.	The governance structure gives unsatisfactory implementation of the strategy and no ongoing commitment from senior management. Responsibility for risk management and performance monitoring is unclear. The level of independence and division of work are unsatisfactory.

3.2. Resources and expertise

The purpose of this section is to assess the institution's resources and expertise in the market risk area. Relevant factors to address in the assessment:

- The board and senior management should ensure that the institution has staff with sufficient competence to manage and control market risk.
- The number of employees should reflect the complexity and scope of the business. The resources should also be sufficient to cover the temporary absence of key personnel. Procedures for vacation for position takers should be established to reduce/hedge operational risk, cf. the EBA guidelines for operational risk, principle 2.
- The balance between units/personnel with profit responsibility and units/personnel with supervisory responsibility should be such that the control units can implement efficient and sound ongoing monitoring of the business activities. Personnel with supervisory responsibility should have a good understanding of relevant risks and have the authority and incentives to identify and assess actions and transactions performed by personnel with profit responsibility, cf. the EBA guidelines for operational risk, principle 3.
- The resources and competence of independent control functions (first and second line) concerning the market risk area should be adapted to the complexity and scope of operations.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	Satisfactory	Less than satisfactory	Unsatisfactory
The organisation's expertise is good in relation to the complexity and scale of operations. The number of staff and their distribution are good in relation to the complexity and scale of operations. Independent control functions' resources and expertise are good in relation to the complexity and scale of operations.	The organisation's expertise is satisfactory in relation to the complexity and scale of operations. The number of staff and their distribution are satisfactory in relation to the complexity and scale of operations. Independent control functions' resources and expertise are satisfactory in relation to the complexity and scale of operations.	The organisation's expertise is less than satisfactory in relation to the complexity and scale of operations. The number of staff and their distribution are less than satisfactory in relation to the complexity and scale of operations. Independent control functions' resources and expertise are less than satisfactory in relation to the complexity and scale of operations.	The organisation's expertise is unsatisfactory in relation to the complexity and scale of operations. The number of staff and their distribution are unsatisfactory in relation to the complexity and scale of operations. Independent control functions' resources and expertise are unsatisfactory in relation to the complexity and scale of operations.

3.3. Remuneration schemes

The purpose of this section is to assess the institution's remuneration schemes for the market risk area. Reference is made to the "Regulations on financial institutions and financial groups" FOR-2016-12-09-150 (Financial Institutions Regulations), chapter 15 on remuneration in financial institutions, investment firms and fund management companies and Finanstilsynet's Circular 15/2014 for further information. Relevant factors to address in the assessment:

- Remuneration schemes should apply to the entire institution and the scheme should promote and provide incentives for sound management and control of the institution's risk. The scheme should be designed to counteract excessive risk taking and conflicts of interest, cf. Section 15-1.
- The scheme should be in conformity with the institution’s overarching objectives, risk tolerance and long-term interests, cf. Section 15-2.
- The institution should at least annually conduct a review of the implementation of the remuneration scheme and prepare a written report of each annual review. The report should be reviewed by independent control functions, cf. Section 15-2.
- The scheme should specify the groups of employees to be regarded as senior employees, as employees with functions of material significance to the institution’s risk exposure, as well as employees with supervisory and control functions, cf. Section 15-3.
- For senior executives, variable remuneration shall normally not constitute more than their fixed remuneration, and never more than twice the fixed remuneration. For the CEO and members of the management team, variable remuneration shall not constitute more than one-half of the fixed remuneration, cf. Section 15-4.
- Measurement of performance shall take into account the institution’s risks and costs related to capital and liquidity needs. The basis for the variable remuneration should be a period of at least two years, cf. Section 15.4.
- Compensation to employees with control responsibilities should be independent of the performance of the business area that they control, cf. Section 15-6.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Established remuneration schemes are good. Regulatory requirements are fulfilled in all areas.	Established remuneration schemes are satisfactory. Regulatory requirements are fulfilled in all areas.	Established remuneration schemes are less than satisfactory. Regulatory requirements are fulfilled in all key areas.	The institution has established no or unsatisfactory remuneration schemes. Regulatory requirements are not fulfilled in key areas.

4. Measurement of market risk

4.1. Position control and risk measurement

The purpose of this section is to assess the institution's systems and procedures for managing and measuring market positions, valuation and calculation of exposure[4]. In the assessment of systems and procedures the complexity and scope of operations should be taken into account. For institutions with a trading portfolio it follows from the Capital Requirements Regulations, Section 31-1 first subsection that the institution's trading book at least daily should be valued at market value. It also follows from Section 31-4 that "*An institution shall have in place policies and procedures with respect to what positions are to be included in the trading book, and for managing, valuing and monitoring the trading book. A regular review of the valuation process shall be undertaken independently of the trading unit and reported to the board of directors. Independent verification of market prices shall take place at least monthly.*" Finanstilsynet expects that the institutions have introduced corresponding procedures, systems and policies to monitor <u>all</u> position that entail market risk, not only positions in the trading book.

Relevant factors to address by all institutions with activities involving market risk:

- The portfolio/information system used to measure the market value of the various positions (risk exposure) should include all positions and should be reconciled with reliable sources for position and market data (e.g. VPS). Portfolio systems should be updated with new transactions on an ongoing basis and at least daily.
- If different systems for different sub-portfolios/instruments are used, there should be procedures for how the data should be integrated and aggregated.
- Portfolio systems should be updated with the new market prices on an ongoing basis. Market prices should be obtained from reputable sources (e.g. Reuters etc.) by independent staff with control responsibilities.
- The valuation and calculation of exposure should be based on recognised models and principles. Risk exposure should be measured in a consistent and uniform manner. Models, parameters and assumptions should be well documented. Key assumptions should be known and understood by the board of directors and management, cf. principle 5 in the Basel document, and should be evaluated at least annually.

[4] Cf. principle 6 in the Basel document and principles 1 to 6 in the Basel standard "Principles for effective risk data aggregation and risk reporting".

- The institution's risk measurement should not be limited to a single measure of risk. A variety of methods should be used to quantify market risk exposure, cf. point 53 in the Basel document.
- Valuation of portfolios and calculation of risk exposure should be undertaken by independent staff with control responsibility.
- Manual procedures related to registration and valuation etc. should be reduced to a minimum. Any manual changes to system data should be documented.
- There should be procedures for quality control of data and systems.
- All relevant positions, cash flows and calculations associated with a transaction (market prices, etc.) should be recorded and stored. Any changes should be traceable (audit trail), cf. the EBA guidelines for operational risk, principle 9.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Good systems and procedures for managing positions. Good systems and procedures for calculating market values and exposure measures.	Satisfactory systems and procedures for managing positions. Satisfactory systems and procedures for calculating market values and exposure measures.	Less than satisfactory systems and procedures for managing positions. Less than satisfactory systems and procedures for calculating market values and exposure measures.	Unsatisfactory systems and procedures for managing positions. Unsatisfactory systems and procedures for calculating market values and exposure measures.

4.2. Risk models

The purpose of this section is to assess the institution's use of statistical models to calculate market risk and economic capital. Relevant factors to address in the assessment:

<u>The models</u>

- The models should capture a sufficient number of risk factors: The risk models should provide a good representation of the actual portfolio.
  - There should as a minimum be risk factors within each of the risk categories covered by the model, i.e. equity risk, interest rate risk, currency risk, commodity risk, etc.
  - In addition, there should be a sufficient and representative number of risk factors within each category, such as points on the yield curve, equity indices, exchange rates, etc.
- The data series (market data, net exposure data) included in the calculations and procedures for updating them must be of adequate quality.
- If there is any uncertainty, the models' calculation of risk-mitigating effects (degree of correlation between various elements within and between portfolios) should be conservatively estimated.

<u>Integration and testing</u>

- The models should be an integrated part of the institution's risk management system.
- The board of directors and management should take an active approach to the risk management process. Both the board and management should be familiar with key parameters and assumptions in the model, and the assumptions and parameters should be evaluated when needed and adjusted regularly, and in any case at least annually.

- The institution should have procedures for control and monitoring of the validity of the model through testing and validation. Testing and validation of both the actual model and modifications to the model, should be well documented.
- The internal audit should review and evaluate the institution's handling and use of risk models in its annual risk assessment.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
There are good models for quantifying market risk relative to the institution's portfolio and level of ambition. The institution's risk models are well integrated in the ongoing management of market risk. Documentation and procedures for testing and validation are good.	There are satisfactory risk models relative to the institution's portfolio and level of ambition. The institution's risk models are satisfactorily integrated in the ongoing management of market risk. Documentation and procedures for testing and validation are satisfactory.	There are less than satisfactory risk models relative to the institution's portfolio and level of ambition. The institution's risk models are poorly integrated in the ongoing management of market risk. Documentation and procedures for testing and validation are less than satisfactory.	There are unsatisfactory risk models relative to the institution's portfolio and level of ambition. The institution's risk models are not integrated in the ongoing management of market risk. Documentation and procedures for testing and validation are unsatisfactory.

4.3. Stress testing

The purpose of this section is to assess the institution's use of stress tests for market risk. The EBA "Guidelines on institutions' stress testing" (EBA/GL/2018/04) from July 2018 apply to the entire institution and all risk factors. Market risk is specifically described in points 125-131 and interest rate risk in the banking book (IRRBB) is points164-170 in the guidelines.

Relevant factors to address in the assessment:

- The institution should measure its vulnerability to extraordinarily volatile and turbulent market conditions, including situations where the key assumptions of the ordinary risk measurement system break down, e.g. lack of liquidity for one or more asset classes or changes in correlations between markets.
- Stress testing should be an integrated part of the institution's risk management system, cf. point 37 in the Basel document.
- The institution should establish a stress test programme and regularly evaluate the design of the stress tests and assess the tests' suitability, cf. chapter 4.1 of EBA/GL/2018/04.
- All significant risk areas should be covered, cf. chapter 4.4 of EBA/GL/2018/04.
- The institution should conduct sensitivity analyses for specific portfolios or risk types, cf. chapter 4.6.2 of EBA/GL/2018/04.
- The institution should implement dynamic and forward-looking scenario analyses where multiple risk factors occur simultaneously, cf. chapter 4.6.3 of EBA/GL/2018/04.
- Scenario analyses should be based on severe but plausible events, cf. chapter 4.6.4 of EBA/GL/2018/04.
- The institution should perform reverse stress tests as part of its stress testing programme, cf. chapter 4.6.5 and point 127 in EBA/GL/2018/04.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Good stress tests. Good procedures for evaluating stress tests.	Satisfactory stress tests. Satisfactory procedures for evaluating stress tests.	Less than satisfactory stress tests. Less than satisfactory procedures for evaluating stress tests.	Unsatisfactory stress tests. Unsatisfactory procedures for evaluating stress tests.

5. Monitoring and reporting

5.1. Procedures for control

The purpose of this section is to assess the institution's procedures for controlling market risk, financial performance and compliance with internal and external guidelines[5]. The assessment must take into account the complexity and scope of operations. A general description of the governance and control framework can be found in principle 2 of the Basel document.

Relevant factors to address in the assessment:

<u>Control of risk</u>

- Monitoring of developments in established risk measures should take place continuously both on a consolidated basis and for sub-portfolios[6].
- There should be procedures in place to ensure that there is consistency between the board's market risk tolerance and the institution's risk appetite, defined in terms of risk limits.
- The board and management should regularly evaluate the outcome of stress tests conducted against the allocated risk capital and the level of established risk limits.
- The institution should ensure that adequate escalation procedures are established in connection with breaches of limits.
- Internal control, including the effectiveness and appropriateness of the various control procedures, should regularly be reviewed by an independent control body.

<u>Monitoring of financial performance</u>

- Monitoring of financial performance should take place continuously both on a consolidated basis and for sub-portfolios.
- The institution should have procedures to reconcile risk (positions) with reported financial results and any cash flows associated with margin agreements (CSA/collateral), cf. the EBA guidelines for operational risk, principle 12.
- The methodology for measuring return should be well documented and follow established best practices.

[5] The institution shall establish appropriate procedures and policies for the management and control of market risk, cf. Section 27 of the regulations on capital requirements and national adaptation of CRR/CRD IV (CRR/CRD IV regulations).
[6] Pursuant to point 29 in the Basel document risks should be monitored on a consolidated basis, whereby the risks in any branches and subsidiaries should be included. At the same time, the institution must take into account any obstacles to the transfer of capital between different entities.

<u>Control of compliance with internal and external guidelines</u>

- There should be procedures for monitoring compliance with internal policies (including limits) and procedures. Repeated violations of internal limits and policies indicate that the procedures (and any well-established attitudes to compliance) are not satisfactory.
- There should be procedures for monitoring compliance with regulatory requirements. Repeated violations of laws and regulations indicate that the procedures are not satisfactory.
- Violation of internal limits, policies and procedures should be reported to the decision level where they have been approved. There should be procedures for monitoring all types of violations.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Established procedures for risk monitoring are good.	Established procedures for risk monitoring are satisfactory.	Established procedures for risk monitoring are less than satisfactory.	Established procedures for risk monitoring are unsatisfactory.
Established procedures for monitoring financial performance are good.	Established procedures for monitoring financial performance are satisfactory.	Established procedures for monitoring financial performance are less than satisfactory.	Established procedures for monitoring financial performance are unsatisfactory.
Established procedures for monitoring compliance with internal and external guidelines are good.	Established procedures for monitoring compliance with internal and external guidelines are satisfactory.	Established procedures for monitoring compliance with internal and external guidelines are less than satisfactory.	Established procedures for monitoring compliance with internal and external guidelines are unsatisfactory.
Good procedures have been established to handle violations of guidelines.	Satisfactory procedures have been established to handle violations of guidelines.	Less than satisfactory procedures have been established to handle violations of guidelines.	Satisfactory procedures have not been established to handle violations of guidelines.

5.2. Reporting to the board of directors and senior management

The purpose of this section is to assess the risk reporting to the board and senior management and the procedures for quality assurance of the reporting, cf. principle 7 in the Basel document and points 64-70 in the IRRBB guidelines. When assessing the risk reporting, the complexity and scope of operations must be taken into account. Relevant factors to address in the assessment:

<u>Content</u>

- Risk reporting to the board and management of the institution should provide comprehensive information on the institution's market risk.
- Reporting should be made to different management levels and should include relevant and adequate information to each reporting level. Aggregated information should be sufficiently detailed to show the institution’s sensitivity to changes in key risk factors in the market.
- Reporting to the board and senior management should include measurement variables that are defined in the strategy, framework documents and overarching policies. Examples:

  - o Actual exposure compared to the established risk limit levels for various types of market risk.
  - o Maximum and average utilisation of limits between the reporting dates.
  - o Actual performance compared to targets.
- The board and management should receive risk reports showing results of stress test calculations and other key analysis of the market risk level. Key assumptions for the calculations should be clearly stated so that the board and management are able to evaluate the validity and implications of the different scenarios.
- The board and management should receive risk reports showing compliance with the institution's policies and procedures in the market risk area.
- The board and management should receive reports showing evaluations of the system for management and control of market risk, including notes from the internal and external auditors.

<u>Frequency</u>

- Risk should be reported to the board and management on a regular basis. The reporting frequency must be adjusted to the complexity and scope of operations.
- In stable market conditions, quarterly risk reporting to the board is considered to be sufficient.
- In turbulent market conditions, the board and/or management should consider to increase the reporting frequency.

<u>Quality assurance</u>

- The institution should have in place established procedures for quality assurance of the reported data and the reporting systems. Reasonableness tests and random checks of the data should be undertaken. The form, content and frequency of risk reports should be evaluated on a regular basis.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Good reports to the board and management Good reporting frequency to the board and management. Good quality assurance procedures.	Satisfactory reports to the board and management. Satisfactory reporting frequency to the board and management. Satisfactory quality assurance procedures.	Less than satisfactory reports to the board and management. Less than satisfactory reporting frequency to the board and management. Less than satisfactory quality assurance procedures.	Unsatisfactory reports to the board and management. Unsatisfactory reporting frequency to the board and management. Unsatisfactory quality assurance procedures.

5.3. External reporting

The purpose of this section is to assess the institution's reporting to the authorities and procedures for quality assurance of the reporting. Relevant factors to address in the assessment:

- The institution should have in place procedures for quality assurance of data reported to the authorities. Poor quality of reporting data indicates that the procedures are not satisfactory.

  - o An example of such a procedure can be that the unit/personnel with ongoing professional responsibility for the market risk area controls the reports before they are sent to the authorities.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Good quality assurance procedures.	Satisfactory quality assurance procedures.	Less than satisfactory quality assurance procedures.	Unsatisfactory quality assurance procedures.

6. Independent control

The purpose of this chapter is to assess the independent control functions. In the present context, ‘independent control functions’ means specifically the internal and external auditors. Control functions in the first line (business unit) and the second line (risk management function and compliance function) are considered to be covered by the description in the previous chapters, especially chapter 4 on monitoring and reporting. Only topics relevant to market risk are assessed here. Relevant factors to address in the assessment:

<u>Independent evaluations</u>

- The institution's system for management and control of market risk should be regularly evaluated by independent control functions, cf. points 26, 27 and 65 in the Basel document.
- Such evaluations should cover the main elements of management and control of market risk for the entire institution, which includes:
  - o Reviewing whether the system for management and control of market risk is adapted to the complexity and risk level of the institution.
  - o Reviewing whether the institution has established sufficient independence and division of work between units/personnel with profit responsibility and units/personnel with control responsibilities.
  - o Reviewing whether the internal policies and procedures for the management and control of market risk are well documented.
  - o Checking whether the internal policies and procedures for the management and control of market risk are followed.
  - o Checking compliance with legal requirements.
  - o Reviewing whether the models and assumptions for the measurement of market risk are well documented and whether the quality assurance of models and underlying data is satisfactory and the aggregation of risk is appropriate.
  - o Reviewing the appropriateness and effectiveness of the institution’s control procedures when measuring and controlling market risk.
  - o Reviewing management's involvement in the control process.
  - o Reviewing whether there is sufficient expertise and resources related to market risk in the institution.

<u>Follow-up of independent evaluations:</u>

- Reports from independent control functions should be treated at an appropriate and adequately high level in the organisation.

- There should be procedures for how reviews from independent control functions should be treated and followed up. Repeated violations of the procedures and large "back-logs" of critical comments which have not been addressed indicate that the procedures are not satisfactory.

In connection with Finanstilsynet's overall SREP assessment (SRV) for the institution, the assessment is graded in one of the categories in the table below. The basis for the grading should inter alia be issues highlighted in the interim report and final comments from on-site inspections.

Good control	**Satisfactory**	**Less than satisfactory**	**Unsatisfactory**
Independent control functions' evaluations are good. The follow-up of independent evaluations/controls is good.	Independent control functions' evaluations are satisfactory. The follow-up of independent evaluations/controls is satisfactory.	Independent control functions' evaluations are less than satisfactory. The follow-up of independent evaluations/controls is less than satisfactory.	Independent control functions' evaluations are unsatisfactory. The follow-up of independent evaluations/controls is unsatisfactory.

1 Appendix 1: Example of notice of on-site inspection

A MANAGEMENT AND CONTROL

1 STRATEGY AND OVERARCHING GUIDELINES

1.1 **Strategy and policy**
1.1.1 The institution's overarching strategy document and its strategy and risk policy for the market risk area. Any strategy documents for relevant sub-units and subsidiaries.

1.1.2 Documentation showing the institution's planning process, including procedures for the revision of its strategy, policy and market risk limits.

1.2 **Market risk limits**
1.2.1 Documentation showing the limit structure and limit levels for the institution's consolidated business in the market risk area.

1.2.2 Documentation showing the delegation of limits and authorisations to different units and levels of the organisation (authorisation structure), including limits to business areas and subsidiaries.

1.2.3 Documentation showing systems and procedures to prevent breaches of limits, any permissions to breach limits, as well as procedures for following up breaches of limits.

1.3 Key policies
1.3.1 Procedures for approval of new products/activities and key hedging strategies for market risk. Documentation of procedures for approval of new products/activities introduced over the past two years.

1.3.2 Any management agreements entered into with fund managers within or outside the group.

1.3.3 Other key policies for activities related to market risk.

2. ORGANISATION AND RESPONSIBILITIES ETC.

2.1 Organisation and distribution of responsibilities
2.1.1 Organisation charts showing the institution's legal structure and functional organisation.

2.1.2 An overview of relevant governing and decision-making bodies, specifying their mandate, composition and meeting frequency.

2.1.3 An overview of units and personnel included in the company's risk management function within the market risk area. Documentation showing the units'/persons' responsibilities and reporting lines.

2.1.4 Detailed description of the unit(s) responsible for preparing reports to the board and management on the market risk level and profit performance.

2.1.5 Documentation showing reporting lines and the distribution of responsibilities between the front office, middle office and back office functions.

2.2 Resources and expertise

2.2.1 Documentation showing any formal requirements for the competence of employees at various levels and in various functions within the market risk area.

2.2.2 Documentation showing the internal audit's resources and expertise in the market risk area.

2.3 Remuneration schemes

2.3.1 Latest report on the annual review of the implementation of the remuneration scheme and any documentation from independent control functions.

3 MEASURING MARKET RISK

3.1 **Position control and risk measurement**

3.1.1 Documentation describing the institution's systems for measuring and controlling market positions (portfolio system). A specification of the functioning and scope of the system. An overview of main changes made over the last two years, as well as known system weaknesses and future development plans.

3.1.2 Procedures for updating and monitoring of position and market data.

3.1.3 Documentation showing the institution's methodology and procedures for calculating risk positions for various financial instruments (including how positions are aggregated), as well as appurtenant valuation principles.

3.1.4 An overview of financial instruments where the valuation deviates from the standard procedure and/or the initial valuation is made by front-office personnel.

3.1.5 Any procedures for the integration of data from different systems, including a description of the method used for data capture. An account of any reconciliation issues.

3.1.6 Documentation of the institution's procedures and methodology for value adjustments to observe the requirements for prudent valuation adjustments of fair-valued financial instruments[7].

3.2 **Risk models**

3.2.1 Documentation describing any statistical models used to measure the institution's market risk level, including the different risk categories included in the model and explanations of its main parameters.

3.2.2 Documentation showing how the model is integrated into the institution's overall system for managing and controlling market risk.

3.3 Stress testing

3.3.1 Documentation showing the institution's systems and procedures for stress testing of market risk. Examples of analyses performed.

3.3.2 Documentation showing the main aspects of the scenarios used in the stress tests.

3.3.3 Documentation showing how the system for stress testing is integrated into the institution's overall system for managing and controlling market risk.

[7] Reference is made to requirements in the technical standard EBA/RTS/2014/06/rev1 on prudent valuation under Article 105 (14) of Regulation (EU) No 575/2013 (CRR) dated 23 January 2015.

4 MONITORING AND REPORTING

4.1 Control procedures

4.1.1 Documentation of control activities for monitoring market risk on a consolidated basis and for sub-portfolios. Last year's minutes from the asset and liability committee or similar governing bodies.

4.1.2 Documentation showing procedures and possible rules of action for risk-mitigating measures when defined risk levels/limits have been breached.

4.1.3 Procedures for monitoring financial performance on a consolidated basis and for sub-portfolios. Methodology for measuring returns.

4.1.4 Procedures for monitoring compliance with internal policies (including limits) and procedures Procedures for monitoring compliance with legislation.

4.1.5 Procedures for reporting and monitoring of violations of policies and procedures (including escalation procedures).

4.1.6 An overview of violations of policies and procedures within the market risk area over the past two years.

4.2 Reporting to the board of directors and senior management

4.2.1 An overview of all regular reports to the board regarding market risk levels and financial results in units assigned market risk limits, specifying the reporting frequency. The latest version of each report.

4.2.2 An overview of all regular reports to the institution's/unit’s management regarding market risk levels and financial results in units assigned risk limits, specifying the reporting frequency. The latest version of each report.

4.2.3 An overview of other regular reports produced as part of the ongoing risk and performance monitoring, specifying the content, frequency and recipients.

4.2.4 Procedures for quality assurance of data and access to reporting systems.

4.2.5 Latest management reporting to the institution's CEO and board of directors in accordance with the CRR/CRD regulations, Section 28 (concerning market risk).

4.2.6 The latest assessment of the institution’s material risks and internal controls to safeguard against these, cf. CRR/CRD regulations, Section 29 (concerning market risk).

4.3 External reporting

4.3.1 Procedures for quality assurance of reporting of market risk to the authorities in the market risk area.

5. INDEPENDENT CONTROL

5.1 Documentation showing internal auditors' resource use and plans for follow-up and evaluation in the market risk area, cf. the CRR/CRD IV regulations, Section 31.

5.2 Reports from the internal auditor affecting the market risk area over the last two years, as well as the comments/response to these from the relevant unit in the institution.

5.3 Reports/letters from the external auditor affecting the market risk area over the last two years, as well as the institution's comments/response to these. Any other relevant reports from other independent control functions during the same period.

5.4 Procedures for following up critical comments from the independent control functions, and the number of comments that have not been addressed by the institution.

B RISK EXPOSURE

1. An overview of the institution’s equity portfolio(s) as at [date] for the trading book and the banking book, respectively, including individual investments in the portfolios. An overview of significant changes in exposure over the past two years. An overview of transaction volume. The assessment principle used for the valuation should be specified.

2. An overview of the market value of the institution’s bond and commercial paper portfolio (assets) as at [date] for the trading book and the banking book, respectively, divided into rating categories. The average (weighted) term to maturity should be shown for each rating category.

3. An overview of the institution's other positions in financial instruments as at [date], including derivatives. An overview of actual exposure in fixed-income, commodity and currency instruments, as well as significant changes in exposure over the last two years. An overview of transaction volume.

4. An overview of the bank's counterparty risk as at [date].

5. An overview of significant changes in the risk limit level over the last two years.

6. Any analyses/assessments that shed light on the institution’s exposure/positions and market risk level.

2 Appendix 2: Principles for sound market risk management

The Basel Committee has prepared the following principles for the management of interest rate risk in the banking book[8]. Finanstilsynet considers the principles to be relevant to the management of market risk in general and will assess the institutions' use of and compliance with these principles as part of their management and control of all types of market risk.

Principle 1: IRRBB is an important risk for all banks that must be specifically identified, measured, monitored and controlled. In addition, banks should monitor and assess Credit Spread Risk.

Principle 2: The governing body of each bank is responsible for oversight of the IRRBB management framework, and the bank's risk appetite for IRRBB. Monitoring and management of IRRBB may be delegated by the governing body to senior management, expert individuals or an asset and liability management committee (henceforth, its delegates). Banks must have an adequate IRRBB management framework, involving regular independent reviews and evaluations of the effectiveness of the system.

Principle 3: The banks' risk appetite for IRRBB should be articulated in terms of the risk to both economic value and earnings. Banks must implement policy limits that target maintaining IRRBB exposures consistent with their risk appetite.

Principle 4: Measurement of IRRBB should be based on outcomes of both economic value and earnings-based measures, arising from a wide and appropriate range of interest rate shock and stress scenarios.

Principle 5: In measuring IRRBB, key behavioural and modelling assumptions should be fully understood, conceptually sound and documented. Such assumptions should be rigorously tested and aligned with the bank's business strategies.

Principle 6: Measurement systems and models used for IRRBB should be based on accurate data, and subject to appropriate documentation, testing and controls to give assurance on the accuracy of calculations. Models used to measure IRRBB should be comprehensive and covered by governance processes for model risk management, including a validation function that is independent of the development process.

Principle 7: Measurement outcomes of IRRBB and hedging strategies should be reported to the governing body or its delegates on a regular basis, at relevant levels of aggregation (by consolidation level and currency).

Principle 8: Information on the level of IRRBB exposure and practices for measuring and controlling IRRBB must be disclosed to the public on a regular basis.

Principle 9: Capital adequacy for IRRBB must be specifically considered as part of the Internal Capital Adequacy Assessment Process (ICAAP) approved by the governing body, in line with the bank's risk appetite on IRRBB.

[8] Interest rate risk in the banking book (IRRBB), April 2016. Only principles of relevance to the institution are included in the list.

3 Appendix 3: Operationalisation of the principle of independence

Finanstilsynet's operationalisation of the principle of independence in section 3.1 of this module. The organisational independence is assessed based the scale below. Account should be taken of whether the "controller's" calculations are based on direct collection of data or whether the data are retrieved via the operative unit. Failure to collect the data directly is considered to weaken the control function's independence. Proportionality should also be taken into consideration.

Rating scale:

0. The manager with ongoing profit responsibility for the risk area and the controlling unit is also responsible for reporting.

1. The reporter's immediate superior has ongoing profit responsibility for the risk area.

2. The reporter is employed in the same organisational unit, but is on the same level as the manager with ongoing profit responsibility for the risk area, with the same immediate superior.

3. The reporter is employed in another organisational unit, but the reporter's organisational unit and the unit of the manager with ongoing profit responsibility for the risk area are organised under the same manager.

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