

MEMORANDUM



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Author Credit Risk Models

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Requirement on IRB models for exposures to commercial real estate

Summary

Finansinspektionen (FI) has analysed the commercial real estate market and makes the assessment it is vulnerable to shocks. In its report *Stability in the Financial System*, May 2019, FI presents its overall assessment of the risks associated with banks' commercial real estate lending. FI believes that the banks do not set aside enough capital to cover the loss risks in this lending. FI therefore sees a need to take action in 2019 to ensure that the banks are holding capital already in the shorter term that fully covers risks associated with lending to commercial real estate firms. FI will conduct a more in-depth analysis of how much the capital requirement should be increased to meet the loss risks in commercial real estate lending. It is FI's preliminary assessment that the risks weights in the banks' lending to commercial real estate firms should be at least 30 per cent. Today, corresponding risk weights are at around 23 per cent.

Following the analysis of the capital need, FI intends in the autumn of 2019 to decide on a Pillar 2 measure that will require banks to hold capital that covers the risks associated with lending to commercial real estate firms.

FI describes in this memorandum important areas of the regulatory framework that are clarified and that are highly relevant for exposures to commercial real estate. It also outlines FI's expectations with regard to how the changes in methodology that are expected to arise from the amendments to the regulatory framework should be considered. The aim is to ensure efficiency, transparency and equal treatment in the forthcoming process.

FI believes that the changes described in this memorandum as a whole will increase the banks' risk weight for exposures covered by the IRB approach. An important factor behind this is that the banks with significant exposures to commercial real estate are expected to apply a special calibration segment for these exposures to ensure that the models are representative. The calibration is the part of the estimation process that leads to an appropriate risk quantification. This means, for example, that the business-cycle adjustments applied to the estimates need to take into account the volatility and risk in the

sector and avoid diversification effects by including other types of exposures in the same calibration segment. In the event a bank's data is not representative, or there is no data from the 1990s, an adjustment must be based on reasonable and sound statistical estimates, for example through extrapolation using a reasonable macroeconomic indicator. In addition, the banks must add an appropriate margin of conservatism to their estimates to consider any uncertainty deriving from known estimation errors.

Introduction – purpose and areas of use

These guidelines aim to convey FI's view on the interpretation of the regulations that apply when banks develop IRB models for exposures to firms where commercial real estate constitutes a significant portion of the exposure. The responsibility lies with the banks to comply with applicable provisions on a case-by-case basis. These guidelines are only intended to support banks in their work to comply with the requirements in the regulations. It is also important to emphasize that these guidelines do not aim to impose any requirements on the banks other than those already laid forth in the regulatory framework.

Some of the technical standards and guidelines referred to in this document have not yet been adopted or translated to Swedish. The guidelines and regulatory technical standards that refer to LGD estimations appropriate for economic downturns (EBA/RTS/2018/04 and EBA/GL/2019/03) had only been published at the time of writing, i.e. not formally adopted by the European Commission. However, the assumption has been made that the regulations mentioned in this memorandum which have not yet been adopted will not undergo any material revisions.

Background

The Swedish banking sector has large exposures to the real estate sector, and loans to the commercial real estate sector constitute a large portion of the banks' corporate loan portfolio. The commercial real estate sector has historically played a significant role in major financial crises. It is capital-intensive, cyclical and largely debt-financed.

The commercial real estate market is also larger in Sweden than it is in other European countries. The total market value in Sweden amounts to approximately 40 per cent of GDP (FI's *Stability in the Financial System*, 2018:2). The development of this market is therefore important for financial stability, and it is important that the banks' IRB models are representative for exposures to commercial real estate and take into consideration the volatility and unique features of this sector.

Internal credit risk models are subject to the rules in the Capital Requirements Regulation (CRR) (575/2013/EU). The European Banking Authority (EBA) has issued guidelines and technical standards to clarify how several articles in

the regulations should be applied. As a result of new guidelines (GL) and regulatory technical standards (RTS) from the EBA, Swedish banks need to change their rating methods. These new guidelines and standards include all types of exposures and will have a significant impact on how Swedish banks apply the IRB approach. Banks with authorisation to apply the IRB approach are expected to comply with the new regulatory requirements in accordance with the schedules specified in the guidelines and standards.

Estimate of PD and LGD for exposures to commercial real estate.

FI has identified in particular the following areas where the regulation offers FI the possibility of more clearly specifying requirements on PD (Probability of Default) and LGD (Loss Given Default) for exposures to commercial real estate.

Application of calibration segments

Swedish banks that apply the internal ratings-based approach for exposures to large corporates rely heavily on PD and LGD models, where quantification and calibration of the risk parameters is done without segmentation based on the obligor's industry or market segment. In cases where Swedish banks do apply segmented calibration of risk parameters for exposures to large and medium-sized corporates, exposures to commercial real estate are seldom a separate calibration segment. This relatively non-granular segmentation is in part due to the fact that the absolute number of defaults for portfolios with low default rates is often not large enough. This makes it necessary to combine data over relatively heterogeneous market segments.

In order to guarantee a level playing field, and to prevent potential regulatory arbitrage that could result from the overall requirements on risk quantification as laid forth in the CRR, the EBA established the following in paragraph 97 of Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures (EBA/GL/2017/16):

Institutions may split exposures covered by the same PD model into as many different calibration segments as needed where one or more subsets of these exposures carry a significantly different level of risk. For this purpose institutions should use relevant segmentation drivers and they should justify and document the use and scope of the calibration segments.”

Paragraph 69 furthermore establishes for PD that banks should “*check the homogeneity of obligors or exposures assigned to the same grades or pools. In particular, grades should be defined in such a manner that each obligor within each grade or pool has a reasonably similar risk of default and that significant overlaps of the distributions of the default risk between grades or pools are avoided.*”

In order to fulfil the requirement in paragraph 69 on homogeneous grades or pools, banks should thus apply calibration segments where necessary. FI

furthermore takes the position that the requirements in paragraph 69 should be fulfilled in such a way that the homogeneity of the grade or pool is secured over the business cycle, thus ensuring that discrepancies in migration patterns between different portfolio segments does not introduce heterogeneity within the grades or pools over time.

For LGD, paragraph 130 establishes corresponding requirements that banks should *“assess the homogeneity of exposures assigned to the same grades or pools based on the data in the RDS and they should ensure, in particular, that grades are defined in such a manner that individual grades are sufficiently homogeneous with respect to loss characteristics.”*

Based on the above, FI makes the assessment that banks should analyse and, if needed, apply a special calibration segment for exposures to commercial real estate. This way, when assessing applications to apply or modify a rating system for exposures to corporates, FI will be able to ensure that risk parameters for exposures to commercial real estate are calibrated properly and that cyclical variation is managed appropriately.

Long-run PD and downward-adjusted LGD estimates

In order to determine long-run PD in accordance with section 5.3.4 of Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures (EBA/GL/2017/16), FI furthermore makes the assessment that the likely range of variability as referred to in paragraph 82 should include observations corresponding to the economic downturn in the 1990s in order to be considered to include bad years in accordance with paragraph 83.

In the event the bank’s data is not representative for the likely range of variability referred to in paragraph 82, the adjustment of one-year-default rates stipulated in paragraph 85(a) must be based on reasonable and sound statistical estimates through, for example, extrapolation of default rates using a macroeconomic indicator that is reasonable for commercial real estate.

In order to determine the likely range of variability for annual default rates and a representative mix of good and bad years for the types of exposures in paragraphs 82 and 83, FI furthermore makes the assessment that it should also be possible to show that these paragraphs are fulfilled at the calibration segment level. The reason for this is to avoid improper consideration of non-deterministic diversification effects on portfolios and portfolio segments.

To estimate LGD values for economic downturns in accordance with Article 181(1)(b) of the CRR, banks, in accordance with Article 2 of EBA/RTS/2018/04, must use the economic factors set out in Article 2(1)(a)(i – iv) and (b)(iii) to identify economic downturns for exposures to commercial real estate. FI makes the assessment in accordance with Article 3(3) of EBA/RTS/2018/04 and based on the lessons learned from the economic crisis of the 1990s that the economic factors stipulated by Article 2 for identification of economic downturns for commercial real estate for the period set out in

Article 3(1)(a) are not representative of the economic factors' likely range of variability. Banks should thus apply a longer period in accordance with Article 3(1)(c), preferably starting at the end of the 1980s.

EBA/GL/2019/03 serves as a basis for the quantification of downward-adjusted LGD values.

Cyclicality and model calibration

For the purpose of determining PD estimates in accordance with paragraph 92 of Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures (EBA/GL/2017/16), banks may choose to calibrate long-term PD estimations using either

- the level of the grade or pool – according to point (a) – and supplement the calibration with tests at the level of the relevant calibration segment
or
- the level of the calibration segment – according to point (b) – and supplement the calibration with tests at the level of the relevant grades or pools.

In other words, in the cases described in paragraph 92(a), banks should use tests to validate that the conducted calibration of the grades or pools generates an aggregate portfolio PD that based on the rating philosophy and calibration method corresponds to the portfolio's long-run average default rate. In the event a bank applies calibration at the level of the calibration segment, in accordance with 92(b), it should ensure that the PD estimate generated by the calibration is in line with the grades' or the pools' long-run average default rate.

Finansinspektionen makes the assessment that the supplemental tests should be specified and take into account the rating philosophy the bank has chosen in accordance with paragraphs 66–68.

Margins of conservatism

In accordance with Article 179(1)(f) of the CRR, banks must add a margin of conservatism to their estimates that is related to the expected range of estimation errors. In section 4.4 of Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures (EBA/GL/2017/16), the EBA has furthermore specified that the margins of conservatism must be the sum of three components:

Category A: Margin of conservatism for data and methodological deficiencies.

Category B: Margin of conservatism relating to relevant changes to underwriting standards, risk appetite, collection and recovery policies and any other source of additional uncertainty.

Category C: Margin of conservatism for the general estimation error.

FI expects banks to apply the above-mentioned margins of conservatism for each calibration segment. In addition to a margin of conservatism under Category C, banks must evaluate data and methodological deficiencies that due to less reliable data and methodologies result in a greater margin of conservatism under Category A.

Banks should also evaluate any changes related to underwriting standards, risk appetite, and collection and recovery policies and apply a margin of conservatism under Category B for changes that result in the population that is used to develop the model not being fully representative for the population to which the model is applied.

Please note that the margin of conservatism in Categories A and B must refer to deficiencies such as those specified in paragraphs 36 and 37. Paragraph 38 specifies that deficiencies resulting in biases in risk parameter estimates must be managed using appropriate adjustments to achieve a best estimate. This way, the margins of conservatism for these risk parameter estimates should also reflect uncertainty related to applied adjustments. Subsequently, a bank cannot compensate for a known bias through margins of conservatism.

To determine an appropriate size for the margin of conservatism in Category A where a bank relies on extrapolation or haircut methodologies for PD or LGD estimates, the bank could benefit from carrying out a sensitivity analysis by evaluating the extrapolation or haircut methodology's outcome based on different methodological approaches.