Chapter 6

Market risk

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6.1 Market risk requirements

6.1.1 R IFPRU 6 applies to an *IFPRU investment firm*, unless it is an *exempt IFPRU commodities firm*.

Purpose

6.1.2 G This chapter:

(1) implements article 101 of *CRD*;

(2) contains the rule that exercises the discretion afforded to the *FCA* as *competent authority* under article 327(2) of the *EU CRR*; and

(3) contains the *guidance* for market risk.

Instruments for which no treatment specified

6.1.3 R (1) Where a *firm* has a position in a *financial instrument* for which no treatment has been specified in the *EU CRR*, it must calculate its *own funds requirement* by applying the most appropriate requirement relating to positions that are specified in the *EU CRR*, if doing so is prudent and appropriate, and if the position is sufficiently similar to those covered by the relevant requirement.

(2) A *firm* must document its policies and procedures for calculating *own funds* for such positions in its trading book policy statement.

(3) If there are no appropriate treatments, the *firm* must calculate an *own funds requirement* of an appropriate percentage of the current value of the position. An appropriate percentage is either 100%, or a percentage that takes into account the characteristics of the position.

Use of internal models: risk capture

6.1.4 R A *firm* which has a permission to use internal models in accordance with Part Three, Title IV, Chapter 5 of the *EU CRR* (Own funds requirements for market risk):

(1) must identify any material risk, or risks that when considered in aggregate are material, which are not captured by those models;

(2) must ensure that it holds *own funds* to cover those risk(s) in addition to those required to meet its *own funds requirement* calculated in accordance with Part Three, Title IV, Chapter 5 of the *EU CRR*; and

(3) (where applicable) must ensure that it holds additional *own funds requirements* for VaR and stressed VaR models.

[**Note:** article 101 of CRD]

6.1.5 G

(1) The methodology for the identification of the risks in IFPRU 6.1.4 R and the calculation of those additional *own funds* for value-at-risk (VaR) and stressed value-at-risk (stressed VaR) models is called the "RNIV framework". A *firm* is responsible for identifying these additional risks and this should be an opportunity for risk managers and management to better understand the shortcomings of the *firm*'s models. Following this initial assessment, the *FCA* will engage with the *firm* to provide challenge and ensure an appropriate outcome.

(2) The RNIV framework is intended to ensure that *own funds* are held to meet all risks which are not captured or not captured adequately, by the *firm*'s VaR and stressed VaR models. These include, but are not limited to, missing and/or illiquid risk factors such as cross-risks, basis risks, higher-order risks, and calibration parameters. The RNIV framework is also intended to cover event risks that could adversely affect the relevant business.

(3) A *firm* should systematically identify and measure all non-captured or poorly captured risks. This analysis should be updated at least quarterly, or more frequently at the request of the *FCA*. The measurement of these risks should capture the losses that could arise due to the risk factor(s) of all products that are within the scope of the relevant internal model permission, but are not adequately captured by the relevant internal models.

(4) On a quarterly basis, the *firm* should identify and assess individual risk factors covered by the RNIV framework. The *FCA* will review the results of this exercise and may require that *firms* identify additional risk factors as being eligible for measurement.

(5) (a) Where sufficient data is available, and where it is appropriate to do so, the *FCA* expects a *firm* to calculate a VaR and stressed VaR metric for each risk factor within scope of the framework. The stressed period for the RNIV framework should be consistent with that used for stressed VaR. No offsetting or diversification may be recognised across risk factors included in the RNIV framework. The multipliers used for VaR and stressed VaR should be applied to generate an *own funds requirement*.

(b) If it is not appropriate to calculate a VaR and stressed VaR metric for a risk factor, a *firm* should instead measure the size of the risk based on a stress test. The confidence level and capital horizon of the stress test should be commensurate with the liquidity of the risk, and should be at least as conservative as comparable risk factors under the internal model approach. The capital charge should be at least equal to the losses arising from the stress test.

Standardised approach for options

6.1.6 G A *firm* that wishes to use own estimates for delta for the purposes of the standardised approach for options, should provide the *FCA* with

confirmation that it meets the minimum standards set out in IFPRU 6.1.8 G to IFPRU 6.1.15 R (Minimum standards for own estimates of delta) for each type of option for which it calculates delta. Where a *firm* meets the minimum standards, it can expect to be permitted to use own estimates of delta for the relevant option.

6.1.7 G If a *firm* is unable to provide assurance with regard to a particular option type which is currently within its permissions, a capital add-on may be applied and a rectification plan agreed. If a *firm* is unable to comply with the rectification plan within the mandated time-frame, further supervisory measures may be taken. This may include variation of a *firm*'s *Part 4A permission* so that it is no longer allowed to trade those particular types of options for which it does not meet the minimum standards.

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Minimum standards for own estimates of delta

6.1.8 G The level of sophistication of the pricing models used to calculate own estimates of delta for use in the standardised approach for options should be proportionate to the complexity and risk of each option, and the overall risk of the *firm*'s options trading business. In general, it is considered that the risk of sold options will be higher than the risk of the same options when bought.

6.1.9 G Delta should be re-calculated at least daily. A *firm* should also recalculate delta promptly following significant movements in the market parameters used as inputs to calculate delta.

6.1.10 G The pricing model used to calculate delta should be:

(1) based on appropriate assumptions which have been assessed and challenged by suitably qualified parties independent of the development process;

(2) independently tested, including validation of the mathematics, assumptions, and software implementation; and

(3) developed or approved independently of the trading desk.

6.1.11 G A *firm* should use generally accepted industry standard pricing models for the calculation of own deltas where these are available, such as for relatively simple options.

6.1.12 G The IT systems used to calculate delta should be sufficient to ensure that delta can be reliably calculated accurately and reliably.

6.1.13 G A *firm* should have adequate systems and controls in place when using pricing models to calculate deltas. This should include the following documented policies and procedures:

(1) clearly defined responsibilities of the various areas involved in the calculation;

(2) frequency of independent testing of the accuracy of the model used to calculate delta; and

(3) guidelines for the use of unobservable inputs, where relevant.

6.1.14 G A *firm* should ensure its risk management functions are aware of weaknesses of the model used to calculate deltas. Where weaknesses are identified, the *firm* should ensure that estimates of delta result in prudent *own funds requirements* being held. The outcome should be prudent across the whole portfolio of options and underlying positions at a given time.

Netting: convertible

6.1.15 R Under article 327(2) of the *EU CRR* (Netting), the netting of a *convertible* and an offsetting position in the underlying instrument is permitted.

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6.1.16 G For the purpose of IFPRU 6.1.15 R, the *convertible* should be:

(1) treated as a position in the *equity* into which it converts; and

(2) the *firm*'s *own funds requirement* for the general and specific risk in its *equity* instruments should be adjusted by making:

(a) an addition equal to the current value of any loss which the *firm* would make if it did convert to *equity*; or

(b) a deduction equal to the current value of any profit which the *firm* would make if it did convert to *equity* (subject to a maximum deduction equal to the *own funds requirements* on the notional position underlying the convertible).

Use of internal approaches

6.1.17 G A *significant IFPRU firm* should consider developing internal specific risk assessment capacity and to increase use of internal models for calculating *own funds requirements* for specific risk of debt instruments in the *trading book*, together with internal models to calculate *own funds requirements* for default and migration risk where its exposures to specific risk are material in absolute terms and where it holds a large number of material positions in debt instruments of different issuers. This provision is without prejudice to the fulfilment of the criteria laid down in Part Three, Title IV, Chapter 5, Sections 1 to 5, of the *EU CRR* (Market risk).

[**Note:** article 77(3) of *CRD*]