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Dear Chief Risk Officer

28 June 2022

PRA's review of the use of the SIMM model: Conclusions

Following the market distress driven by the Covid-19 pandemic, the Archegos default,[1] and the most recent turmoil in the commodities market caused by the Russia-Ukraine crisis, there have been a number of regulatory initiatives aimed at assessing the adequacy of margining frameworks. This is both for cleared and non-centrally cleared over-the-counter (OTC) derivatives.[2]

1 Joint Letter to banks operating in the UK: Supervisory review of global equity finance businesses following the default of Archegos Capital Management December 2021: https://www.bankofengland.co.uk/prudential-regulation/publication/2021/december/supervisory-review-global-equity-finance-businesses.

2 BCBS, October 2021: https://www.bis.org/bcbs/publ/d526.pdf .

In this wider context, we recently carried out a review of the use of the Standardised Initial Margin Methodology (SIMM)[3] model by large banks with the aims of monitoring its performance during the Covid-19 pandemic market stress period; and, more broadly, assessing model compliance against the regulations governing exchange of margin on non-centrally cleared derivatives.[4] Having concluded the review, we are writing to draw your attention to our conclusions and to the issues that we have identified; primarily around:

- **SIMM model governance**; and
- firms' capability to **identify and remediate model underperformance on a timely basis**.

In our view, the existing governance process, in which firms rely primarily on the International Swaps and Derivatives Association (ISDA) for updating SIMM or negotiating add-ons for model underperformance, may result, for some counterparties, in margin levels not adequate to cover for risks at the 99% confidence level as required by regulations[5].

Furthermore, in September 2022, a large number of smaller counterparties, of which many are hedge funds, will enter in scope of the regulation[4] as the roll-out of mandatory margining for non-centrally cleared OTC derivatives reaches its close-to-final stage. We expect that a significant share of these funds may have portfolios with risk profiles materially different from those to which SIMM has to date been predominantly applied (ie large broker-dealers' and banks' portfolios). Hence, it is even more critical that SIMM model governance can enable firms to promptly identify and remediate model underperformance.

Expected actions for Category 1 banks[6] using SIMM

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3 The Initial Margin (IM) rules permit the use of an internal model, and firms have typically sought to use a common industry-wide model, the so-called Standardised Initial Margin Methodology (SIMM). SIMM has been developed by the International Swaps and Derivatives Association (ISDA) in collaboration with the larger banks that were part of the phase 1 roll-out. **The updated ISDA model description is publicly available at: https://www.isda.org/a/CeggE/ISDA-SIMM-v2.4-PUBLIC.pdf**.

4 The regulations governing exchange of margin on non-centrally cleared derivatives are contained in the on-shored version of Regulation (EU) 648/2012, available at: **https://www.legislation.gov.uk/eur/2012/648/contents** (EMIR) as supplemented by Delegated Regulatory Technical Standards (EU) 2016/2251, available at: **https://www.legislation.gov.uk/eur/2016/2251/contents** (RTS). The scope of the regulation covers financial counterparties and NFC+ with large non-centrally cleared derivatives books, and it is implemented in 6 phases.

5 Article 15(1) of **https://www.legislation.gov.uk/eur/2016/2251/chapter/II/section/4.**

6 The Prudential Regulation Authority's approach to banking supervision, October 2018 (page 12): **https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/approach/banking-approach-2018.pdf.**

Based on the observations and context provided, we will expect to see evidence that the risk of under-margining identified above is being addressed.

We expect firms to take the steps indicated in the Annex (where relevant) by December 2022, and then report the findings to their supervisors.

Yours sincerely

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Annex:

PRA's review of the use of the SIMM model: Key findings and follow-up actions

Background

Since its introduction in 2014, the roll-out of mandatory margining for non-centrally cleared OTC derivatives has reached its close-to-final stage. The largest counterparties were included in the first five phases of the roll-out and are already within the scope of the mandatory margining obligation. Phase six (September 2022) is expected to bring in scope a large number of smaller counterparties, including many hedge funds.

The Initial Margin (IM) rules permit the use of an internal model, and firms have typically sought to use a common industry-wide model, the so-called Standardised Initial Margin Methodology (SIMM). SIMM has been developed by the International Swaps and Derivatives Association (ISDA) in collaboration with the larger banks that were part of the phase one roll-out. The model specifications are fully owned by ISDA, and it manages SIMM governance at a global level through an ongoing process to take account of and prioritise feedback from in-scope firms.

PRA review

We recently carried out a review of the use of the SIMM model by large banks, with the aims of monitoring its performance during the Covid-19 pandemic market stress period and, more broadly, assessing compliance with the Regulatory Technical Standards (RTS).

1. Main findings

The review has highlighted two areas of potential concern:

I. The SIMM model governance uses predominantly one performance metric, the so-called '3+1 back-testing'.[7] We have identified a number of limitations with 3+1 back-testing, primarily related to:

    a. the usage of in-sample data; and
    b. not accounting for non-modelled risk factors in the testing process.

[7] 3+1 back-testing is a historical back-testing methodology introduced by ISDA as the main performance metric for SIMM. It is calculated over the most recent three years and one year of stress, resulting in significant overlap with the data set used to calibrate the SIMM model and not accounting for risk factors not included in SIMM. Because of these two mentioned features, 3+1 departs significantly from both MR and CCR accepted standards for back-testing internal models that are always out of sample and compare model forecasts with realised P&L.

As a consequence of these limitations, 3+1 back-testing may not always adequately identify poorly-performing models, as required by the RTS.[8] To the extent the 3+1 performance measure is in some instances inadequate, the resulting IM may not be sufficient to cover for risks at the 99% confidence level as required by the RTS for some counterparties.

II. We observe that, if firms rely primarily on the global ISDA governance process for updating SIMM or negotiating add-ons, this may not be adequate to ensure timely action is taken to remediate model underperformance (especially if relating to a firm's unique portfolio of trades and risks); which is ultimately the responsibility of firms themselves under the RTS (no differently from any other internal model).

These findings are not related to the specifics of the model design, such as a calibration methodology which is relatively less sensitive to current market data.[9] Our primary focus is to ensure that in-scope firms are adequately margined (in the sense specified by the RTS) on an individual portfolio basis and that they are meeting the requirement of the RTS.

2. Potential impact on hedge funds portfolios

We note that phase six of the mandatory margining rules roll-out will bring in scope a large number of hedge funds. We expect that these funds may have portfolios with risk profiles significantly different from those to which SIMM has to date been applied (ie large broker-dealers' and banks' portfolios). These portfolios may also be significantly exposed to risk factors not directly modelled in SIMM (due to the overall materiality).

In this regard, we have observed that:

I. Under firms' current practice using SIMM, back-testing exceptions are considered for remediation (either by firms applying IM add-ons or by ISDA changing SIMM) only if the model shortfall exceeds a large absolute threshold; and

II. 3+1 back-testing (the main metric that drives the identification of the model issues to be remediated)[10] is typically insensitive to non-modelled risk factors.

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8 14(3) of the RTS which requires P&L back-testing, rather than 3+1 back-testing: **https://www.legislation.gov.uk/eur/2016/2251/chapter/I/section/4**.

9 The SIMM calibration is based on a data sample including a period of stress and is updated on a yearly basis; as such, it is meant to be less sensitive to current or recent market data. In addition, SIMM margins depend on spot market values mainly through trade sensitivities; and hence are expected to be weakly affected by sharp market fluctuations (as eg the ones experienced recently during the Nickel turmoil).

10 Some firms are performing P&L back-testing as well, as required by the RTS. Nevertheless, P&L back-testing results do not feed into firms' overall governance processes in all cases (contrary to RTS requirements).

This means that, without firms taking action, some portfolios will risk being systematically under-margined, for example where the overall shortfall is below the ISDA materiality threshold and/or the underlying risk factors are not modelled in SIMM.

Expected actions for Category 1 banks using SIMM

Based on the observations and context provided in the previous section, we will expect to see evidence that the risk of under-margining is being addressed by individual firms, including by:

I. undertaking a self-assessment of their implementation of the mandatory margining for non-centrally cleared OTC derivatives requirements against the relevant regulations (and in particular the RTS), including consideration of:
   a. the observations raised above;
   b. compliance against article 14 of the RTS; and
   c. the role played by P&L back-testing in the firm's own SIMM model governance; and

II. providing a corrective action plan for any gaps identified in 1.

Actions 1 and 2 (if applicable) should be completed by December 2022. We expect firms to take these steps (where relevant) and then report the findings to their supervisors.