Basel 4: The way ahead

Market Risk
Is the output floor a game changer for internal models?

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01 Introduction

The new capital requirement standards issued by the Basel Committee in December 2017 have three main implications for market risk.

First, the confirmation of an output floor that will potentially constrain the benefits from the use of internal models when determining a bank’s risk weighted assets (RWAs). Most of the commentary on the revised market risk framework has focused on the challenges and issues for a bank’s trading book. However, there has been much less analysis of the implications of the output floor on the market risk capital calculation and the impact of this on the incentives for banks to use the internal model approach (IMA). Leaving aside supervisory expectations and guidance on the use of IMA and the ‘non-capital’ benefit, is the output floor the final nail in the coffin for the IMA? This paper argues that it is not.

The output floor will limit the extent to which the use of internal models for credit, counterparty credit and market risk can reduce a bank’s overall RWAs (internal models will not be allowed for operational risk and credit valuation adjustment risk) to below its total RWAs as calculated under the Standardised Approach. Capital buffers and Pillar 2 requirements are additional to this amount.

Second, the implementation date of the revised framework for market risk has been pushed back to 1 January 2022 to align with the other changes and the commencement of the phasing in of the output floor.

Third, notwithstanding the introduction of the output floor there are still benefits for banks moving to an internal model approach for market risk.
02 Implications for banks using the internal models approach

(i) Data, systems and processes

- Data is a key element underpinning two of the most important aspects of the revised market risk framework and the new output floor:
  - The huge implementation and operational efforts required just to meet the new requirements; and
  - The cliff effect between the internal model and standardised approaches and the volatility this will introduce over time to capital.

- Some banks may already have in place the data, systems and processes to meet the new market risk requirements, but many others will have to make significant investments in new data, systems and processes.

- Banks with approval for (or required by their supervisor to use) the internal model approach (IMA) will have to ensure that their internal processes are sufficiently robust.

- Risk and Front Office will need to work together to align data and models in order to pass the eligibility test for calculating capital requirements.

- Banks will also be required to obtain new model approvals in line with the revised market risk framework. There will be added complexity for some banks affected by Brexit because they may have to apply to the ECB by 2020 for model approval under the current rules before Brexit takes effect, and then apply again (potentially to the ECB and the Bank of England) before 2022 under the new rules (the revised market risk framework).
(ii) Business model

- Banks are focusing this year on ‘no regret’ foundational capabilities (such as data alignment and data granularity) with subsequent years focused on new capital engines and parallel runs.
- Banks should analyse their different business lines to ensure that they remain sustainable in all aspects (including capital usage, client expectations, etc). This must include the legal entity lens.
- This could lead to a possible reshaping of capital management and the divestment of non-core business activities and trading desks.

(iii) Capital

- Although the revised market risk framework and the output floor are not in force until 2022, banks should ensure that they are incorporating potential future impacts into their capital planning process and product pricing.
- KPMG experts anticipate that the output floor will reduce to some extent the capital benefits available from using (or moving to) the IMA. There will be contrasting impacts between smaller banks and larger banks, as well as between banks currently adopting Monte Carlo compared to those adopting historical simulation. Meanwhile, the scope for national discretion by supervisors may lead to significant differences in impacts across banks in different jurisdictions.
- Uncertainty around the finalisation of some market risk requirements is also likely to make it difficult to assess impacts and compare across institutions.
- The precise timing of the capital impacts also remains uncertain – pressure from market analysts may in effect require banks to comply with the new requirements ahead of their fully transitioned implementation dates. On the other hand the January 2022 implementation date could slip further back if there are delays in amending EU legislation.
Although the revised market risk framework was mostly finalised by the Basel Committee in January 2016, some important details remain to be determined. These include eligibility testing and non-modellability. Moreover, even the delayed implementation timetable remains challenging for those banks that have weak foundational capabilities.

Banks considering moving from the standardised approach (SA) to IMA for market risk need to take account of these uncertainties and the potential impact of the introduction of the output floor, in addition to the rules that were finalised back in January 2016.

KPMG experts have performed analysis to highlight the capital impact of the output floor on moving from SA to IMA. The structure of a bank’s trading operations will play a critical role in determining the overall impact on market risk capital requirements.

The analysis is based on scenarios in which the proportion of market risk capital requirements vary from 7 percent to 34 percent of a bank’s overall capital requirements, and in which the capital benefit of moving from the SA to the IMA would be a 40 percent reduction in the absence of the capital floor.

The graph below shows the additional IMA market risk capital (in percent) required for varying market risk proportions over the transitional period as the output floor comes into effect. For example, an IMA bank that has 7 percent of its RWA in the form of market risk will experience approximately a 25 percent higher IMA capital charge as a result of the implementation of the floor.

1. Based on the Basel Committee’s impact analysis, a capital benefit of 40 percent from moving from the SA to the IMA should be a conservative estimate for the ‘median’ banks.
2. As compared to the IMA capital that would have been required if the output floor was not introduced.

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Based on the introduction of the aggregate floor, the analysis shows that:

1. The output floor is not binding during the first two years of the transitional period (2022 and 2023), so no additional capital is required and the full benefit of moving from SA to IMA holds.

2. As we move towards 2027, the floor becomes binding and on average the market risk IMA capital requirement increases by around 5 percent in 2024, a further 8 percent in 2025 and 2026, and 4 percent in 2027.

Overall, on average over the full transitional period, the market risk IMA capital requirements increase by around 25 percent with the introduction of the output floor. This would imply that the capital benefit of moving from SA to IMA would be reduced by 15 percent (as a percentage of the SA market risk capital requirements) with the introduction of the floor.

Despite this additional requirement, the analysis shows that the benefit of implementing IMA will still outweigh the cost where a bank has material market risk. The box below provides an illustration of this for a bank with relatively low market risk capital requirements as a proportion of total capital requirements. The benefits would increase if market risk capital requirements were higher.

### Example of the capital impact of moving to the IMA

Assume that following the implementation of the January 2016 market risk framework and the December 2017 revisions to credit and operational risk capital requirements a bank has:

- Total bank wide capital requirement under the SA = €3,000 mn
- Total bank wide capital requirement from using internal models for credit and market risk (and SA for CVA operational risk) = €1,700 mn
- Market risk capital requirement under the SA = €300 mn
- Market risk capital requirement under the IMA = €180 mn.

The table below summarises the impact over the transitional period for the implementation of the output floor.

<table>
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<tr>
<th>Year</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
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| Floor | 50%  | 55%  | 60%  | 65%  | 70%  | 72.5%
| Binding bank wide model based capital (€ mn) | 1,700 | 1,700 | 1,800 | 1,950 | 2,100 | 2,175 |
| Floor Binding? | No | No | Yes | Yes | Yes | Yes |
| Incremental capital required year by year at bank wide level (€ mn) | 0 | 0 | 100 | 150 | 150 | 75 |
| Incremental capital required year by year for market risk IMA (€ mn) | 0 | 0 | 9 | 14 | 14 | 7 |

3. Based on a recent client survey, average estimated implementation spend on implementing the revised market risk framework is around €53 mn per bank. Although purely illustrative, based on our bilateral discussions with banks we assume the amount related to the IMA elements is estimated to be between €30 mn to €40 mn. Assuming a difference between funding through capital and funding through other liabilities of 10 percent, the net present value of the reduction in capital requirements over 15 years is approximately €79 mn.
04 How KPMG can help

KPMG member firms have established teams of specialists able to help banks across a wide range of financial risks.

KPMG professionals have built a tool to assess the impact of market risk based on the introduction of the output floor that can assist banks to analyse their current structure and identify whether the path to IMA will be beneficial or not.

KPMG professionals can assist banks by:

- Advising on the structure of their market risk management function and market risk models to improve decision making and the integration of various components of the financial risk spectrum.
- Reviewing market risk frameworks to incorporate the new requirements while helping to ensure that they remain fit for purpose for current regulatory requirements.
- Helping to prioritise efforts on those aspects of the requirements that are good practice and represent 'no regrets' choices, such as:
  - Data cleansing (quality) and alignment (Front Office and Risk) including product/risk factor taxonomies (which in turn supports risk data aggregation and reporting);
  - Front Office data granularity (risk factor level) and availability of data;
  - Enhancing model governance; and understanding modelling differences across Front Office, Risk and Finance (which in turn supports Model Risk Management);
  - Assessing regulatory and other programme overlaps and potential efficiencies (e.g. IFRS9);
  - Developing roadmaps for implementation and the potential operating model to aid accelerated roll out;
  - Standardised modelling capabilities; and
  - Build out secondary considerations and effects, such as capital allocation.
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