Basel 4: The way ahead

Credit Risk - IRB approach
Closing in on consistency?

April 2018

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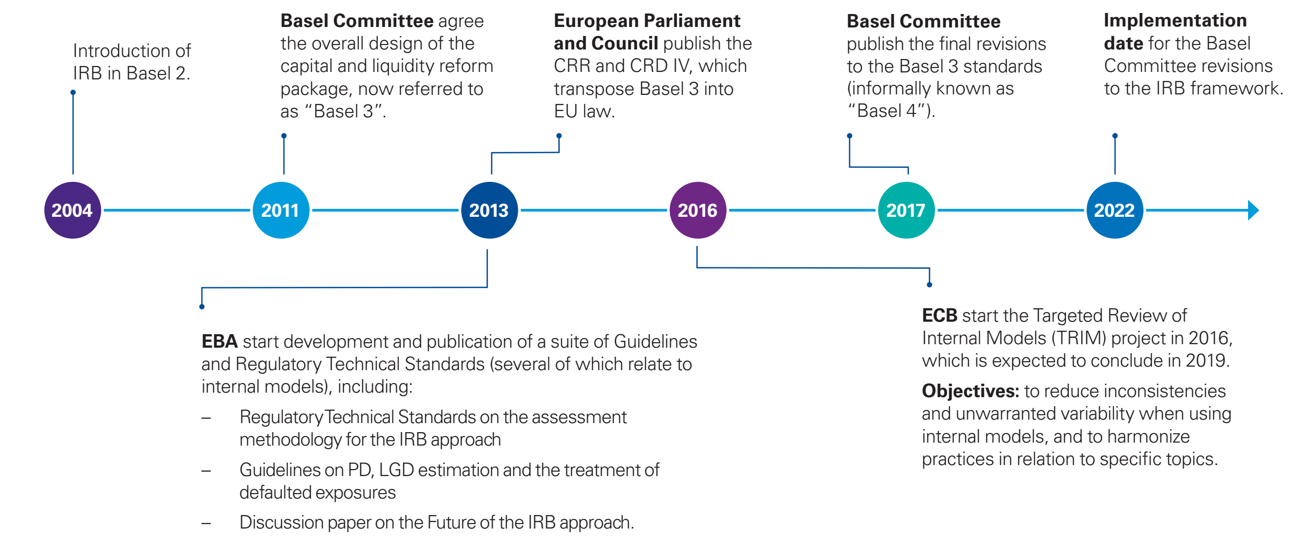
01 Introduction

The revised standards published by the Basel Committee in December 2017 included new rules regarding the use of the Internal Ratings Based (IRB) approach for the calculation of risk weighted credit exposures.

While these changes to IRB are not as severe as some banks had feared, they represent a further erosion of the benefits of internal models and need careful consideration by banks who either have IRB approval or are considering applying for it.

The Basel 4 revisions arrive in an environment already awash with regulatory and supervisory activity. In particular, the 'excess variability' in risk weights caused by internal modelling has been a key driver for a suite of European Banking Authority (EBA) Regulatory Technical Standards and Guidelines as well as the ECB TRIM (Targeted Review of Internal Models) initiative.

Figure 1: Selected events and regulatory activities affecting the IRB approach



02 Impact on banks' capital ratios

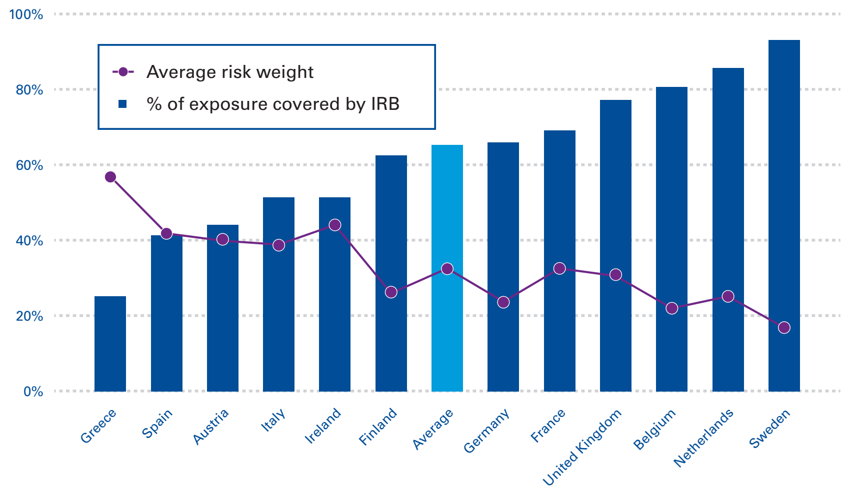
The main revisions to the IRB framework are:

- **Restrictions on the IRB approach** – the Advanced-IRB approach is no longer allowed for exposures to banks and other financial institutions, or for corporates belonging to a group with total consolidated annual revenues greater than €500 million (note that Foundation-AIRB is still allowed for these exposures). Further, no IRB approach is allowed for equity exposures[1].
- **Risk Weighted Asset (RWA) calculation** – removal of the 1.06 scaling factor used in the calculation of Risk Weighted Assets for credit risk exposures.
- **Risk parameter floors** – introductiont of PD, LGD, EAD and CCF floors for corporate and retail exposures. For corporate exposures the minimum PD (floor) has increased from 0.03 percent to 0.05 percent, and LGD floors set for different collateral types. Similarly new PD and LGD floors are in place for retail exposures (for QRRE[2] revolvers the PD floor is increased to 0.1 percent).

These changes, in particular the restriction on the IRB approach and the introduction of parameter floors, will have a direct impact on Pillar 1 capital requirements.

Data from the 2017 EBA Transparency exercise show a wide range of IRB usage across countries, with overall risk weights aligned (inversely) to the level of usage.

Figure 2: Proportion of Credit Risk exposures under the IRB approach and average credit risk weight (June 2017)

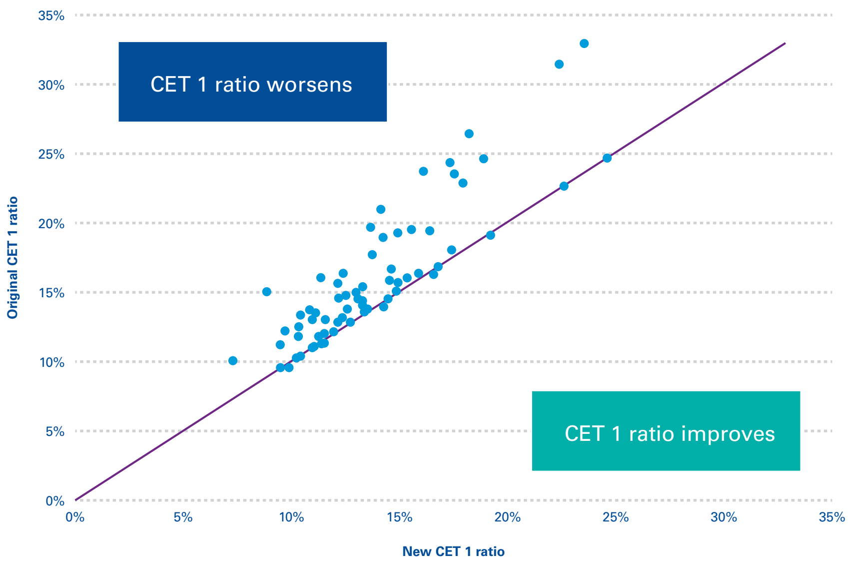


Source: KPMG

1. The prohibition on the use of the IRB approach for equity exposures will be subject to a five-year linear phase-in arrangement starting from 2022, unless supervisory authorities require complete phase-in immediately in 2022.
2. Qualifying Revolving Retail Exposure, for example credit cards

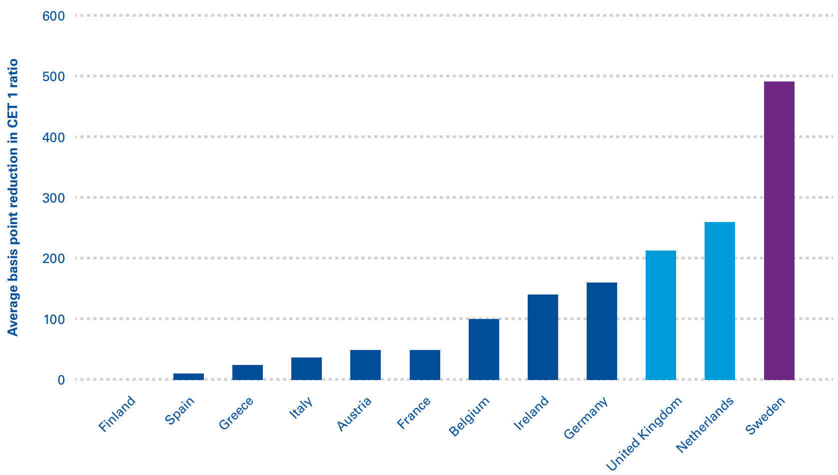
Including the Basel Committee revisions to the Standardised Approach to Credit Risk and the new output floor[2] in addition to the revisions to the IRB approach, KPMG experts estimate that over three quarters of European banks would see a fall in their CET 1 capital ratio (see Figure 3, where each point represents an IRB bank in the EBA Transparency data sample).

Figure 3: CET 1 ratio impacts for European IRB banks (Credit Risk changes and output floor)



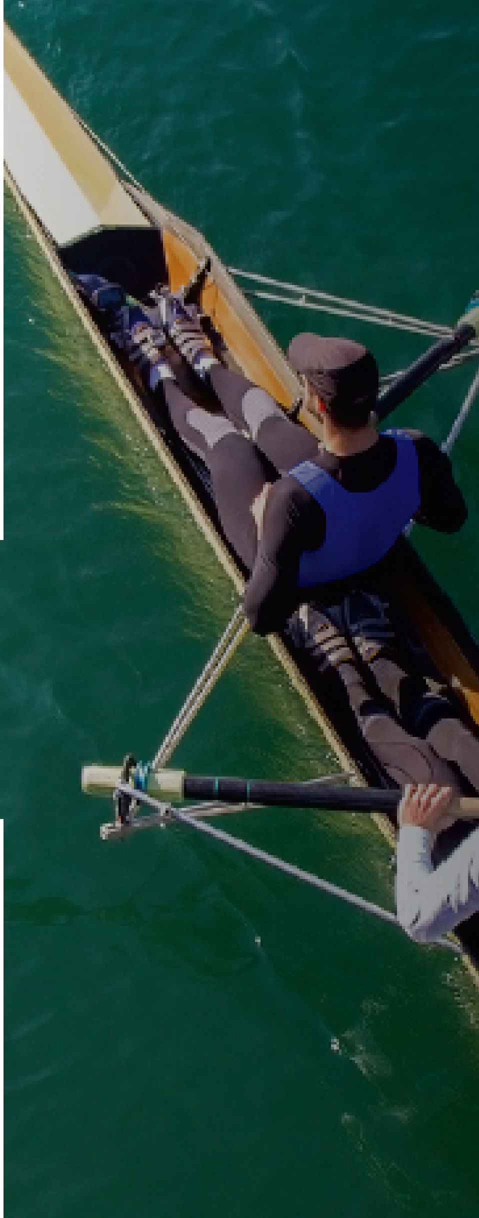
This analysis also shows that Swedish and Danish banks would, on average, be the most heavily affected. In particular Sweden has a number of banks with a high degree of exposure to residential mortgage loans where the use of internal models and low historic default rates has resulted in risk weights significantly lower than in other counties. Under the output floor this leads to a major depletion in CET 1 ratio - however as these banks are currently well capitalised there should still remain headroom over regulatory requirements.

Figure 4: Indicative effects of the changes to Credit Risk and Output floor



3. No assumption has been made in this analysis regarding risk types other than Credit (for example Market Risk or Operational Risk). As such, this does not represent the "true" impact of applying the output floor, rather a proxy-floor based only on credit risk.

Across other countries the impact is not as severe. There are several countries where the credit risk changes have negligible impact on CET1 capital ratios. In some of these cases this is due to limited use of the IRB approach, while in other countries there is less of a divergence between modelled and standardised risk weights (in which case the effect of the floor is mitigated).



Overall, there appear to be limited capital impacts for most banks as a result of restrictions on the IRB approach and the new IRB parameter floors. The restrictions on the IRB approach (no A-IRB for banks or large corporates, and no IRB for equities) affect only a small proportion of banks' total exposures.

As shown above the changes to Credit Risk under Basel 4 are expected, on average, to increase a bank's capital requirements once the output floor is applied. So purely on the basis of own funds requirements there may be less incentive to use the IRB approach. However the difference between average risk weights on the IRB and Standardised approaches still leaves scope for capital benefits from more advanced approaches.

While more subjective, the increased granularity of risk measurement that accompanies the IRB approach can also help the business understand and manage its credit risk more effectively.

Figure 5: Restrictions on the use of the IRB approach

Total Credit Risk exposure for EBA European reporting sample (all approaches): €28.5 trillion

65% **of exposures are on the IRB approach.**

The following exposures will be affected by restrictions on the IRB approach:

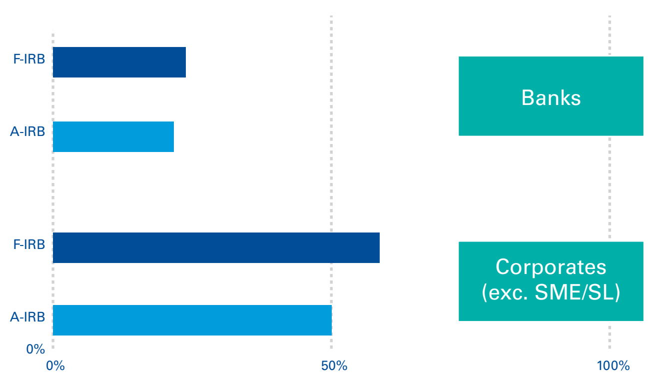
- 16%[3] **Corporates (Exc. SME/8L)** → 10% A-IRB → 0-10% Corporates with annual revenue > €500m
- 6% **Banks** → 3% A-IRB
- 0.4% **Equity**

35% **are on the Standardised approach**

Total proportion of exposures affected by IRB restrictions is expected to be limited

Meanwhile, the incremental change in risk weights from moving fromA-IRB to F-IRB may also be quite limited for some banks

Risk weight comparison (estimated based on Pillar 3 data)



Source: KPMG analysis of EBA Transparency data and Pillar 3 disclosure reports

4. These percentages are based on the entire sample of exposures, i.e. both IRB and Standardised.

03 Additional impacts

Beyond the quantitative impacts outlined above, it is expected that the Basel 4 changes will force banks to re-examine the distribution of exposures across types of credit, and the set up of their data and systems. Banks using the IRB approach should consider the following areas:

Product offering and pricing

The relative attractiveness of different credit products will shift based on the associated cost of capital. It is unlikely that the Basel 4 IRB changes by themselves would lead to a reduction in lending, as such portfolio decisions are influenced by a wider dynamic of profitability, costs and market positioning.

Some banks may look to reprice risk and gradually rebalance their portfolio composition, particularly since the increased sensitivity of risk weights under the new Standardised Approach would have impacts for both Standardised Approach banks as well as those using IRB.

Controls and governance

The revised calculation of Pillar 1 capital requirements for credit risk will require appropriate control procedures and governance, for example to ensure floors are applied at the correct level. In particular, the controls around data and systems will be critical to ensure a successful implementation of Basel 4. Other elements of governance included as part of the minimum requirements for using the IRB approach are largely unchanged from current requirements.

Data and Systems

The changes to credit risk approaches (both Standardised and IRB) will require further changes to data capture and systems. For example, under the new Standardised Approach, banks will have to ensure that they can calculate a LTV based on origination valuation and outstanding balance, which may be different from how they currently calculate it. Banks using the IRB approach will need to ensure that they can calculate risk weights using the Standardised Approach as part of calculating the output floor.

04 How KPMG can help

It is important for banks to start understanding what the new Basel requirements mean in terms of risk exposure calculations, processes, data and systems. KPMG member firms can help IRB banks with:

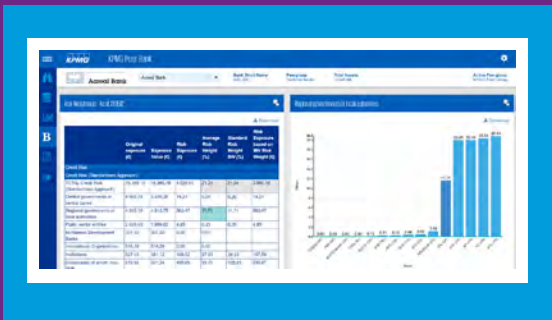
- Assessing the implications of the interplay between the restrictions on the use of the IRB approach, the output floor and the revised Standardised Approach, and to assess corresponding business decisions. This can also be extended to cover the combined impact across risk types (credit, market and operational).

- Deciphering the quantitative impact of Basel 4. KPMG member firms have developed the Basel 4 Calculator as part of its Peer Bank offering (see below). This tool facilitates benchmarking and sensitivity testing of the impacts of Basel 4.

- Undertaking a gap analysis assessment to understand what is changing and to use this information as an input to identifying the required data, systems and processes, and the implications of this for longer term planning and budgeting decisions. Any new data items that need to be captured may initiate larger scale changes or programmes around IT architecture in order to deliver clearer data lineage and quality.

KPMG member firms have extensive experience in supporting banks to apply for, and maintain, IRB approval. This includes model development, model risk management, and understanding and fulfilling compliance requirements.

KPMG Peer Bank



KPMG Peer Bank is a benchmarking tool that offers varying levels of analysis for banks to understand their position among peers. The tool is populated with data from recent EBA transparency exercises and includes a Basel 4 Calculator which allows banks to proxy for potential Basel 4 effects for themselves and for their peers.

The calculator uses a set of assumptions on risk weights on line item level and accounts for the Basel 4 output floor. Average risk weights can easily be adjusted by the user to account for bank-specific effects.

Banks that are interested in learning more about the Peer Bank tool should contact the KPMG ECB Office, whose contact details are included on the back cover.

05 The finer details

The Basel Committee has also detailed additional requirements of the IRB approach relating to 'minimum requirements' for the IRB approach, and the criteria for exposure allocation. However, these items are well aligned to existing requirements so should not represent a large change for banks.

- **Minimum requirements for the IRB approach**
  The revised Basel standards specify a number of aspects that must be met in order to use the IRB approach for a given asset class. These requirements cover both technical elements relating to the estimation of risk parameters (e.g. PD, LGD and EAD) as well as general requirements that relate to internal models, for example their validation, use and documentation. Comparing these requirements with what was in Basel 2 reveals only minor differences.

- **Requirements for parameter estimation**
  While most of the requirements are unchanged, the Basel Committee has provided additional specifications on certain modelling areas such as EAD estimation and LGD under the Foundation-IRB approach.

- **Criteria for asset class allocation**
  The Basel Committee provides definitions and criteria for categorising exposures into the following classes: corporate, sovereign, bank, retail and equity.

Restrictions to the IRB approach

Portfolio	Approaches available under Basel 2	Approaches available under the revised IRB approach
Large and mid-sized Corporates (consolidated revenues > EUR 500m)	– Advanced-IRB – Foundation-IRB – Standardised Approach	– Foundation-IRB – Standardised Approach
Banks and other financial institutions	– Advanced-IRB – Foundation-IRB – Standardised Approach	– Foundation-IRB – Standardised Approach
Equities	– Various IRB approaches – Standardised Approach	– Standardised Approach
Specialised Lending (The Basel Committee did not restrict any approach for Specialised Lending, but has confirmed that it will be reviewing the continued use of the Slotting approach)	– Advanced-IRB – Foundation-IRB – Slotting approach – Standardised Approach	– Advanced-IRB – Foundation-IRB – Slotting approach – Standardised Approach

Source: High-level summary of Basel III reforms, Basel Commitee on Banking Supervision, December 2017

The parameter floors

Minimum parameter values in the revised IRB framework

	Probability of default (PD)	Loss given default (LGD)		Exposure at default (EAD)
		Unsecured	Secured	
Corporate	5 bp	25%	Varying by collateral type: 0% financial 10% receivables 10% commercial or residential real estate 15% other physical	EAD subject to a floor that is the sum of (i) the on-balance sheet exposures; and (ii) 50% of the off-balance sheet exposure using the applicable Credit Conversion Factor (CCF) in the standardised approach
Retail – Mortgages	5 bp	N/A	5%	
Retail – QRRE transactors	5 bp	50%	N/A	
Retail – QRRE revolvers	10 bp	50%	N/A	
Retail – Other	5 bp	30%	Varying by collateral type (same as Corporate)	

The Basel Committee has noted the ability for different jurisdictions to approach implementation in a stricter manner: “More generally, jurisdictions may elect to implement more conservative requirements and/or accelerated transitional arrangements, as the Basel framework constitutes minimum standards only”.

National discretions

There are several points where the Basel Committee allows for national discretion in the implementation of the Basel rules. Given the variability in risk weighted assets from internal models is one of the main drivers of recent regulatory initiatives it will be interesting to see how the implementation of Basel 4 affects the current direction of harmonisation.

The discretions allowed in relation to the revised IRB approach include:

– Supervisors may decide that the restriction on IRB for equity exposures is performed on a fully phased-in approach in 2022. The alternative is that the restriction is implemented on a five-year linear phase-in arrangement.

– Supervisors may exclude from the retail residential mortgage class loans to individuals that have mortgaged more than a specified number of properties or housing units, and treat such loans as corporate exposures.

– Supervisors may allow banks to assign preferential risk weights to “strong” and “good” exposures in the Specialised Lending class.

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