

## **1.2 IMPACT OF FINAL BASEL III ON THE EU MORTGAGE SECTOR**

### **IMPLICATIONS FOR COMPETITIVE DYNAMICS AND CREDIT PROVISION**

#### **Introduction**

In December 2017, the Basel Committee concluded their work on updating and completing the Basel III international regulatory framework for banks. A key objective of the reform is to reduce excessive variability of banks' capital requirements primarily driven by internal models, used by most large banks to estimate capital requirements. Here, policymakers' concern has been that the variation in the risk estimated by internal models, is not linked to corresponding variations in the underlying risks.

To address this, the Basel Committee has, amongst other things, suggested the implementation of a so-called output floor, providing a minimum level of capital that a bank must hold, thus working as a back-stop for estimated risk.

The European Commission recently released Banking Package 2021 with a proposal on how to implement the Final Basel III agreement in the EU. It introduces key changes to credit risk, operational risk and market risk and suggests implementing the output floor in accordance with what was suggested by the Basel Committee.

Previous studies conducted show strong evidence that the output floor will significantly impact low-risk business, such as mortgage lending. On the back of this, the EMF-ECBC commissioned Copenhagen Economics to assess the impact of Banking Package 2021 on the EU mortgage market.

In this article, we outline the results of the recently conducted study and discuss the wider implications of implementing Banking Package 2021. The article consists of two parts: part 1, by Copenhagen Economics, outlines the key findings of the study. Part 2, by Wolfgang Kälberer, focus on the wider implications for the banking sector.

#### **PART 1**

By Astrid Leth Nielsen and Jonas Bjarke Jensen, Copenhagen Economics

### **IMPACT ON CAPITAL REQUIREMENTS FOR THE EU MORTGAGE SECTOR**

#### **Main findings**

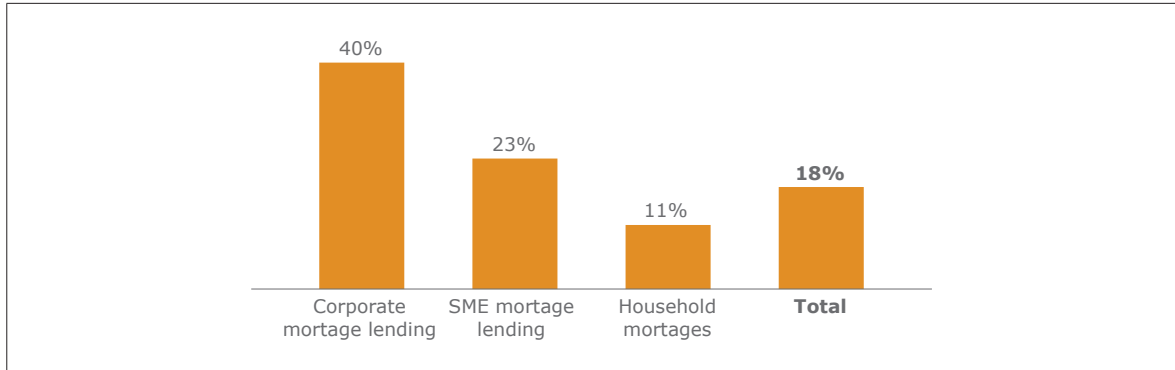
In the study, we estimated that capital requirements for the EU mortgage portfolios<sup>1</sup> will increase by an estimated 18% compared to the end of 2020. This corresponds to EUR 22 billion in extra capital. Fully restoring capital ratios to the pre-package level would require an additional EUR 17 billion, leaving a total extra capital need of up to EUR 39 billion.

However, the average impact of 18% includes substantial variation across institutions and depends crucially on two dimensions: 1) the type of lending and 2) which approach is taken by the institutions to model risks. In other words, the *average* impact is not very reflective of how institutions actually will be impacted; some institutions might see very strong impact, while other institutions in fact will see a decline in capital requirements for their mortgage portfolios.

To illustrate this, we can first look across different types of mortgage lending, where we found large discrepancies, see Figure 1. For corporate mortgage lending we estimated that capital requirements will increase by 40% on average. On the other hand, household mortgages will be less impacted with an increase on 11%. This should be seen in the light of the focus of Banking Package 2021, which has been in favour of lighter treatment of households, compared to the original Basel proposal. Under the standardised approach (applicable when the output floor is binding) the risk weight on 20% applied to exposures secured by residential real estate is thus significantly lower than the risk weight on 60% applied to exposures secured by commercial real estate.

<sup>1</sup> We analyse assets included in the EBA transparency exercise, i.e., we assess the impact on 80 of the largest credit institutions in 13 major mortgage markets in the EU. Our country selection covers 93% of the EU mortgage market.

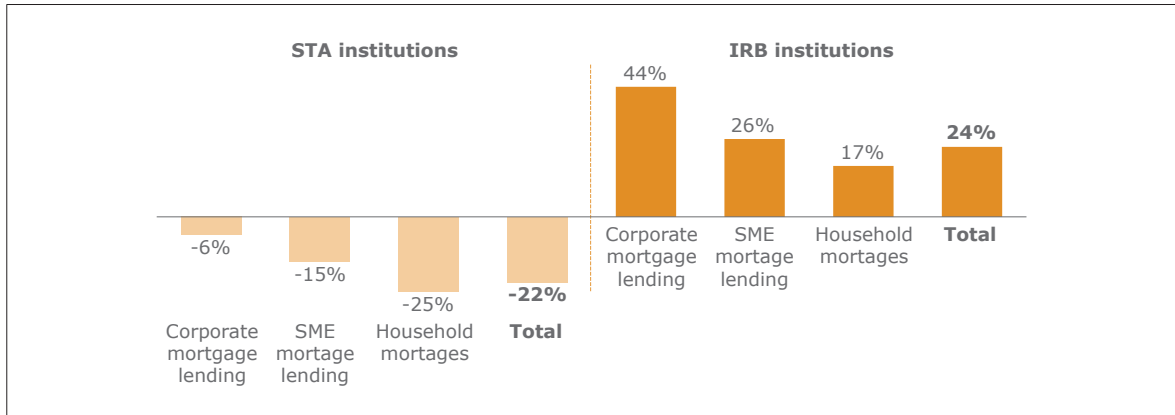
> FIGURE 1: INCREASE IN CAPITAL REQUIREMENTS FOR DIFFERENT PORTFOLIOS, % OF ORIGINAL CET1 REQUIREMENTS



Source: Copenhagen Economics (2022) Impact of Final Basel III on the EU mortgage sector

Another relevant split is based on the approaches taken by institutions to model risk today; where IRB institutions on average had an increase in capital requirements of 24%, we found that STA institutions actually will experience a decrease in capital requirements of 22%, see Figure 2. This is based on the more preferential treatment of STA RW laid out with the loan-splitting approach in Banking Package 2021. Again, corporate mortgage lending at IRB institutions will be impacted the most with an increase on 44%. The impact for SME exposures is in general lower due to the SME supporting factor continued from the current regulation in Banking Package 2021.

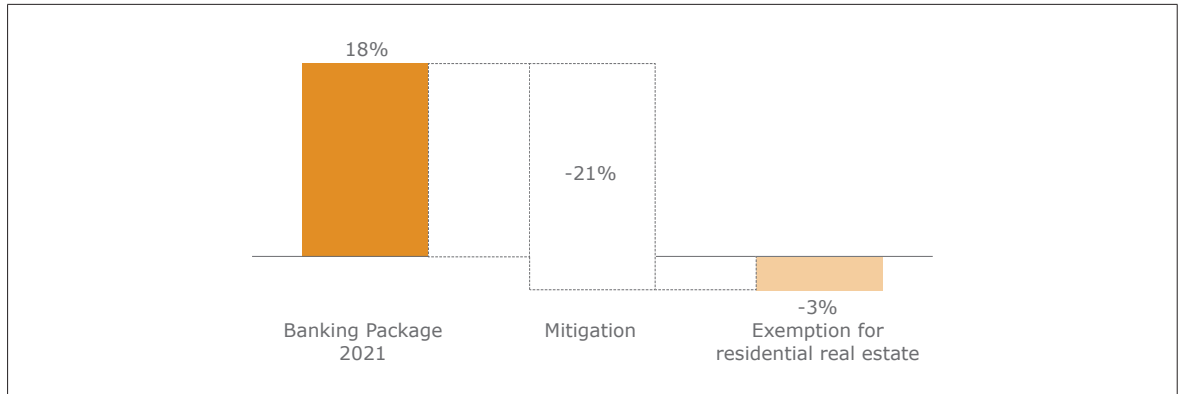
> FIGURE 2: INCREASE IN CAPITAL REQUIREMENTS, % OF ORIGINAL REQUIREMENTS



Source: Copenhagen Economics (2022) Impact of Final Basel III on the EU mortgage sector

Banking Package 2021 could be implemented in ways that could temporarily mitigate the estimated increase in capital requirements. For example, the EU Commission has suggested a transitional arrangement for mortgage loans secured by residential real estate – conditional on banks passing the so-called hard test (demonstrating low losses during the last 6 years). This could practically neutralize the impact of the package, as it would significantly reduce the number of banks being bound by the output floor. Assessing the impact on top of fully-loaded capital requirements, we find a small decline in capital requirements for the EU average mortgage portfolio of around 3% as shown in Figure 3.

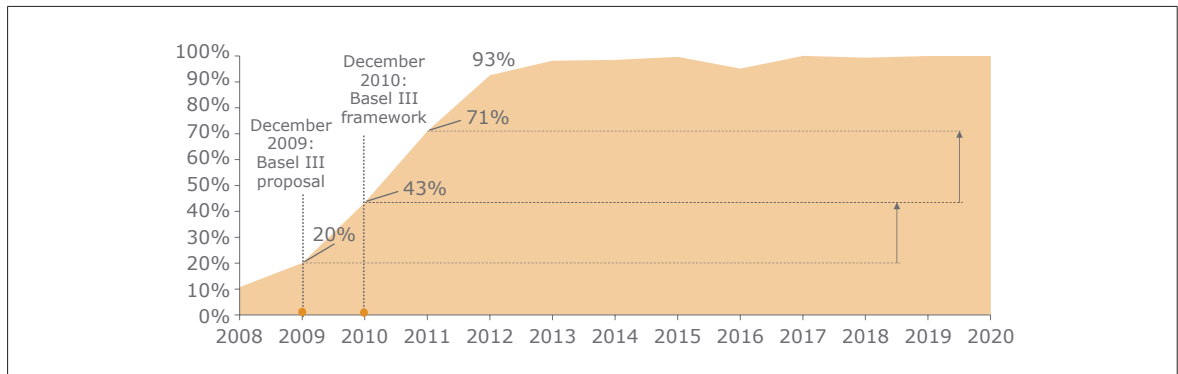
> FIGURE 3: CHANGE IN CAPITAL REQUIREMENTS WHEN EXEMPTION FOR RESIDENTIAL REAL ESTATE IS IN EFFECT (ON TOP OF FULLY-LOADED REQUIREMENTS), CONDITIONAL ON PASSING THE HARD TEST, % OF ORIGINAL CET1 REQUIREMENTS



Source: Copenhagen Economics (2022) Impact of Final Basel III on the EU mortgage sector

To have any significant impact on the capital need of institutions, we would expect that the temporary exemption would have to be made permanent. There is strong evidence that banks adjust to capital requirements shortly after the announcement of a reform, for instance due to market expectations. This was the case after the proposal and announcement of the Basel III framework in 2009 and 2010 – here, most European banks complied with Basel III capital requirements already in 2012 see Figure 4, even though they were only to be fully phased in, in 2019.<sup>2</sup>

> FIGURE 4: BANKING ASSETS COMPLIANT WITH BASEL III CET1 CAPITAL REQUIREMENTS, PERCENT OF TOTAL ASSETS



Note: The minimum CET1 capital requirements under Basel III assumed here are the ones mentioned in the original publication on Basel III. This results in a fully phased in CET1 requirement of 9.5%, assuming a countercyclical capital buffer equal to the maximum value of 2.5%.

Source: S&P Global Market Intelligence database; BCBS (2009) – Strengthening the resilience of the banking sector, BCBS (2010) – Basel III: A global regulatory framework for more resilient banks and banking systems.

<sup>2</sup> See for instance Copenhagen Economics (2021) EU implementation of the Final Basel III standard – impact on the European banking sector and the real economy.

## **How we did it**

First, please note that our study only explores the effects of Banking Package 2021 on the European mortgage sector. Thus, we estimated the **contribution of the mortgage portfolio** to lenders' total capital requirements. An estimated decline or increase in capital requirements for the mortgage portfolio, should thereby not be seen as the total impact for the lender. The reason being a mortgage lender often will have many other exposure types, which will likely see an increase in capital requirements due to Banking Package 2021.<sup>3</sup>

We estimated the impact of Banking Package 2021 for the mortgage portfolio (covering households, SMEs and corporates) for some 90% of the total EU mortgage market. The development in data on the banking sector in recent years, made it possible for us to carry out the study without requiring any confidential data from lenders. Instead, we were fortunate: 1) that the EBA transparency exercise gave us much of the data needed<sup>4</sup> made our study possible and 2) pillar 3 reports and other public available information have to disclose information on e.g., LTVs, classification of lending and average sizes of loans, which we used to estimate risk weights applicable to the different exposures.

As mentioned, the study only covered the mortgage sector. However, we still had to estimate capital requirements on a group level, because the output floor is binding on an aggregate level. We did so, by first implementing measures not related to the output floor, e.g., changes to market risk, operational risk and the standardized approach. Second, we estimated capital requirements under the output floor for the lender as a whole, thereby including all portfolios. Finally, we assessed which of the two capital requirements was highest; if the floored capital requirements were higher than unfloored, the lender would be bound by the output floor, and we would apply floored risk weights to the mortgage portfolio.

## **IMPLICATIONS FOR COMPETITIVE DYNAMICS**

The impact of the package could very well reach beyond the need for institutions to recapitalise. The large divergence in how hard institutions is affected could entail that the package has broader ramifications in how competitive different banks are in servicing different types of clients. Or rather it speeds up an already ongoing process the previous decade where regulatory overhaul has initiated a disentangling of underlying risks and capital costs.

Going back to basic banking, one would expect there to be a clear relation between underlying risks, capital allocated and passed-on capital costs. In a world without regulation, this would be the case as banks would allocate more capital buffer to more risky clients – a capital cost that the client would likely need to pay for.

The current IRB framework somewhat simulates this basic banking principle – although admittedly in a quite complex manner: When the fundamentals of a client worsen, say lower revenue-to-debt, the PD of the client will worsen in the internal models of the bank, leading to higher risk weights. The higher risk weights would increase the capital costs for that client.

Most large IRB approved banks would have internal capital costs allocation models that would distribute the higher capital costs to that client (of group of clients). Of course, there are many considerations in a pricing decision, but on average we should expect coherency between capital costs for individual clients and the prices that they pay.

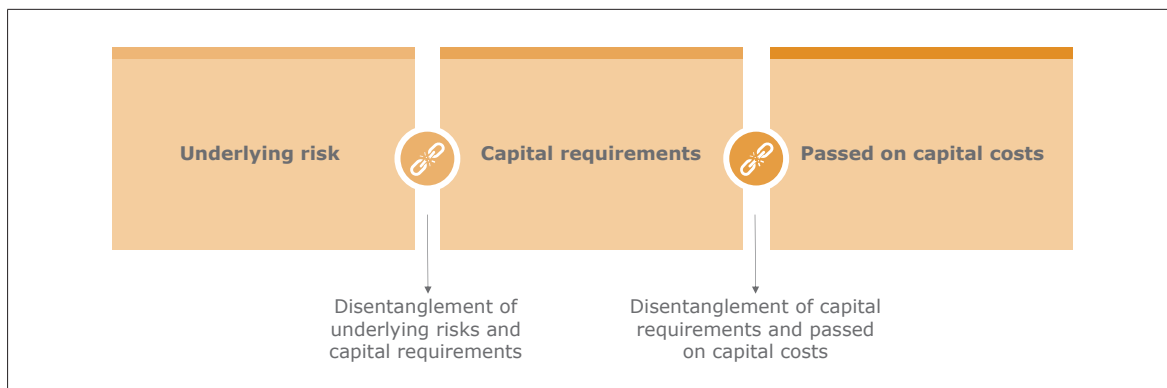
To sum up, with the current framework we have that higher risk, leads to higher capital requirements, which leads to higher capital costs being passed on. The Final Basel III package – and particular the way it is being implemented in EU – challenges this coherency.

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<sup>3</sup> For instance because of higher RW's for unrated corporates and market risk.

<sup>4</sup> Our study thus covers the 80 financial institutions for the 13 biggest mortgage markets in the EU, included in the EBA transparency exercise.

> FIGURE 5: DISENTANGLING OF RISK, CAPITAL REQUIREMENTS AND PRICING OF BANK PRODUCTS



Source: Copenhagen Economics (2022) Impact of Final Basel III on the EU mortgage sector

### **Disentanglement of underlying risks and capital requirements**

Let us start with the first break in this coherency; disentanglement of underlying risks and capital requirements. For around 2/3 of IRB institutions the output floor will be binding, as a result of the Final Basel III package, cf. Figure 6. This means that floored risk weights will be applied based on the standardised approach, where LTV is the only input factor. As a result, higher risk of default for the underlying asset will not have any implications for capital requirements.

This will change the strategic choice for lenders of which customer groups to pursue, with larger incentives – everything else being equal – to pursue high risk customers. For example, when bound by the output floor, a large renowned unrated corporate with billions in revenue and a 50-year history of no default will have the same capital requirements as a newly started online retailer.<sup>5</sup> In turn, this will imply that lenders will become less competitive in servicing large corporates, which might look for funding elsewhere, e.g. issuing debt on capital markets; it is not given that large corporates are willing to pay the price for the higher capital requirements, if passed on – as these are out of sync with risk fundamentals.

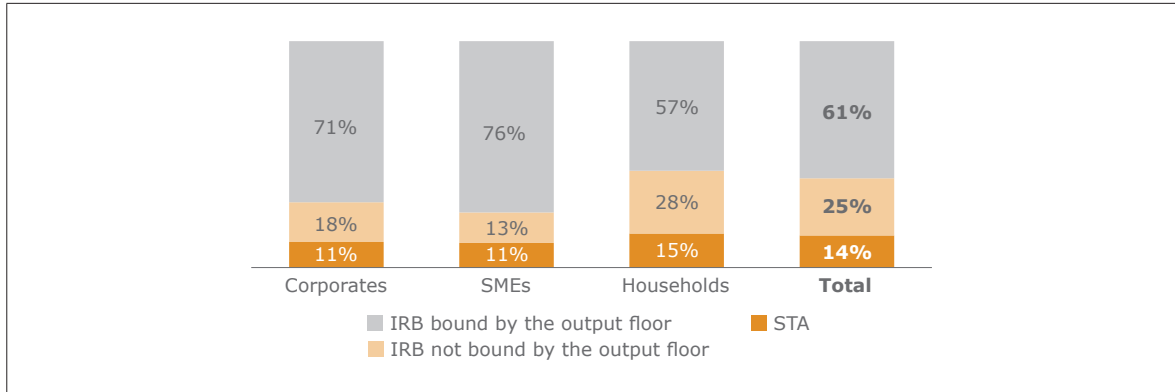
### **Disentanglement of capital requirements and passed on capital costs**

As mentioned, the 18% average impact covers very large divergency among institutions: in our sample, more than 15% of all institutions will experience increases in capital requirements of more than 30% – in some cases we see increases in capital requirements of more than 70%. At the same time, around 1/3 of IRB banks will not be bound by the output floor, implying little change to capital requirements. In some cases, both end of the scale is operating on the same market.

This could shift the competitive dynamics on the markets they operate in. In particular because the output floor is binding on a group level. Thus, even though a given bank might not experience large changes on the aggregate level, a binding output floor could still significantly change the implied capital costs for individual customer groups.

<sup>5</sup> Given it is large enough to not receive a SME discount.

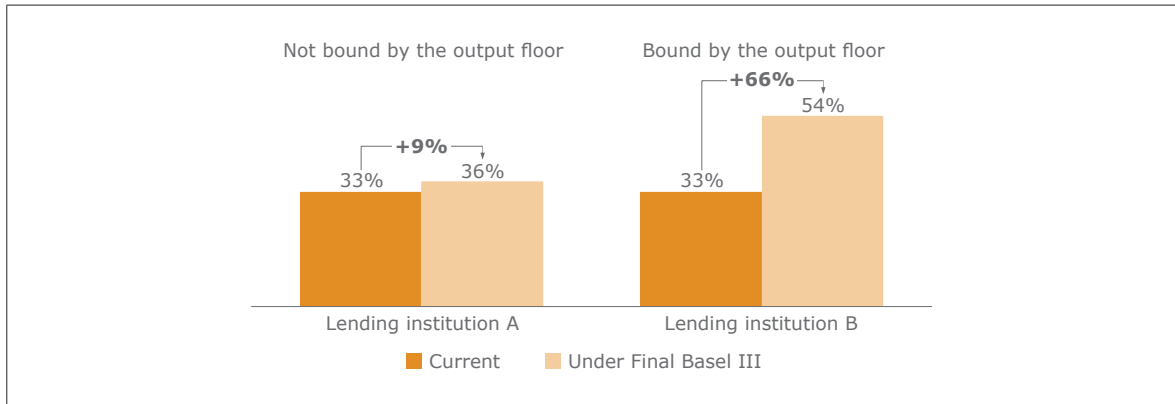
> FIGURE 6: AROUND 2/3 OF IRB EXPOSURES WILL BE BOUND BY THE OUTPUT FLOOR, SHARE OF MARKET MORTGAGE EXPOSURES



Source: Copenhagen Economics (2022) Impact of Final Basel III on the EU mortgage sector

To see this, consider a stylized example of two lending institutions (A and B), which have identical corporate portfolios. However, lending institution A has a larger residential mortgage portfolio, where institution B has almost no residential exposure. As a result, institution B will see a strong increase in capital requirements for the corporate portfolio, whereas institution A will not – even though they have identical corporate portfolio. This is illustrated in Figure 7.

> FIGURE 7: INCREASE IN RISK WEIGHTS FOR THE CORPORATE PORTFOLIO – ILLUSTRATIVE, RISK WEIGHTS



Source: Copenhagen Economics

The reason is as follows: in the EU implementation, capital requirements for the residential portfolio are significantly lower compared to corporate exposures. Thus, because of the large residential portfolio, institution A will not be bound, implying very limited impact on capital requirements. Institution B – with a completely identical corporate portfolio – would on the other hand be bound by the output floor and experience a strong increase in capital requirements for the corporate portfolio – in this example of 66%. This will make institution A more competitive in servicing corporate clients. This leaves institution B the difficult strategic question of whether it will fully pass-on the capital costs, take a cut in return on equity or seek to move exposures off the balance sheet, e.g. pushing corporates clients towards capital markets.

Before the package, competitive dynamics would make sure that differences in capital costs passed on for a given customer segment will not be too large, since this represents business opportunities for new entrants, which could service the given customer segment.

However, this was in a situation where capital requirements for the large IRB institutions was quite homogeneous; the same customer would have the same capital requirements at the different banks. What will happen when the Final Basel III package will break this homogeneity? This is a difficult question to answer and will be based on individual lending institutions strategy and business model. Our expectation is that we will move towards a situation where capital costs are less likely to be passed on 1:1 to the customer segments that experience the highest increases, but instead be more broadly spread out on customers, while considering price sensitivities of different segments.

From tax incident literature, we know that smaller clients, households and SMEs typically have smaller price sensitivity. They do not have the same professional setup in investigating optimal funding opportunities, and have fewer financing choices, e.g. cannot issue debt on capital market. Consequently, we could end up in a situation where households and SMEs eventually will end up with a significant portion of the bill of Final Basel III – despite the fact that exactly these customer groups have been imposed less strict requirements to begin with.

## **PART 2**

By Wolfgang Kälberer, EMF-ECBC Strategic Advisor

### **CONCLUSIONS FOR BUSINESS MODELS AND MORTGAGE MARKETS**

It is worthwhile recalling that the European banking industry requested that the output floor (OF) be introduced as one of three approaches to calculate capital requirements, the so-called parallel stacks approach. The highest capital requirements resulting from either the IRB risk based approach (unfloored), the 72.5% floored risk weights based on the Basel III requirements only or from the leverage ratio would be applicable. As the use of IRB models is de facto already subject to two backstops (PD & LGD input floors and the leverage ratio), the introduction of a 'gold plated' European OF of 72.5% essentially represents a third backstop which is considered by the Industry to be unnecessary and will ultimately penalise primarily low risk business such as mortgage lending.

The research carried out by Copenhagen Economics shows that the whole value chain from lending to funding is impacted by the OF. Based on their analysis, the following five conclusions on the preferable implementation of the package can be provided.

#### **Conclusion N°1: The output floor (OF) of 72.5% proves to be particularly detrimental for a majority of mortgage markets with substantial IRB exposures**

Whereas the overall Banking Package triggers an average capital increase for the entire banking sector of 6-8%, there is strong evidence that certain types of mortgage lending are impacted much more significantly: the average additional capital needs for mortgage portfolios are expected to increase by 18%. The main driver for such an incommensurate capital increase is the output floor of 72.5%. Around two-thirds of IRB exposures in the mortgage market of the European Union (EU) are bound by the output floor.

An 18% capital increase is almost 2 times higher than the average weighted capital increase triggered by all other banking assets. It is furthermore far beyond the initial target ratio. At the beginning of the process, the G-20 mandate provided guidance that Basel III should not result in significant capital increases across the banking sector (below 10% additional capital). But in reality, an important share of banks' balance sheets is affected: the 18% increase, in the markets assessed, applies to 28% of the total EU credit assets (outstanding mortgage loans in the EU of around 8 trillion Euro, equal to almost 50% of EU GDP).

The size of this increase is even more remarkable as mortgage lending is recognised as a low-risk business and is correlated with some of the lowest loss rates across the EU. But the OF impact does not reflect this correlation. To the contrary, the lower the risk of the underlying mortgage exposures, the higher the additional capital needs of IRB institutions could be. Banks might be inclined to reduce the percentage capital increase by adding higher risk exposures to their portfolio. Such a mechanism would not only set the wrong incentives but also points to a substantial misalignment between the risk profile of the underlying exposures and the design and calibration of the OF. The result is a significant loss of risk sensitivity, which translates in mortgage markets carrying some of the strongest additional capital burden triggered by the implementation of the OF.

An underlying justification for the introduction of the OF relates to the reliability of IRB models. However, these models and the associated data requirements are put through rigorous approval procedures. The ECB conducted a targeted review of internal models from 2016 to 2020 (TRIM). And the EBA designed a corresponding IRB Roadmap with new guidelines and standards that have been implemented by banks. IRB models are not only under constant monitoring and benchmarked by supervisory authorities, but the EBA already confirmed in 2016 that there is no robust evidence that IRB models are pro-cyclical.

### **Conclusion N°2: IRB banks expect average capital increases of 24%**

Focusing the impact assessment on IRB banks, the additional capital needs are even higher: these banks will be confronted with an average capital increase of 24% for their mortgage loan books. Distributing this figure between the different customer types, it can be concluded that:

- > household mortgages carry capital increases of 17% (11% including banks using the standardised approach/STA banks)
- > SME mortgages carry capital increases of 26% (23% including STA banks) what represents a substantial additional capital burden to the detriment of the backbone of the European economy
- > corporate or commercial mortgage loans carry capital increases of 44% (40% including STA banks). Such an increase could constitute a serious challenge for the funding of the real economy of the EU.

### **Conclusion N°3: A permanent favourable regime for low-risk residential mortgages is required in order to mitigate major negative consequences for consumers**

It is vital that the transposition of the OF into the CRR is calibrated as neutrally as possible for residential mortgages. The target should be to avoid any substantial interest rate increases for private homeowners. Otherwise, the affordability of homeownership would be at stake.

In order to achieve this target, the proposed 'transitional arrangements' for low-risk residential mortgages must be maintained and turned into a permanent regime, and this across all Member States and not at Member State discretion. Permanence is all the more justified as mortgage lending is generally designed as a long-term business which remains on the balance sheet of lenders until full redemption of the loans. In contrast to the 'originate to distribute model', the balance sheet tradition acts as a very efficient consumer protection tool where lenders accompany households over decades, addressing problems where relevant and being available to find appropriate solutions.

Should IRB banks be forced to securitise their mortgage assets in order to reduce higher capital costs, consumers could find themselves in front of anonymous and possibly foreign Special Purpose Vehicles (SPV) holding their debt and primarily led by investment and profitability interests. Beyond off-balance funding schemes of mortgages, another potentially detrimental effect for consumers would consist of the risk of mortgage businesses be shifted from regulated lenders to non- or less regulated market participants. Consumers might ultimately be confronted with capital providers who are commonly allocated to the 'shadow banking market'.



A long-term relationship with households, alongside the dual recourse nature of mortgages, comes with a risk mitigation effect. There is no more robust and objective a tool for the measurement of the 'real' risk profile of exposures than loss rates (hard test requirement in Art. 465 par.5 CRR). In case of compliance the proposed treatment under Art. 465 par.5 CRR would be justified without time limitation.

Finally, a permanent favourable regime for household mortgages is fundamental in order to address the climate change challenges, i.e. the investment needs triggered by the decarbonisation of the building stock and building renovation. In a context where more than 220 million homes in Europe need to be renovated to meet the EU 2030 climate targets, this equates to renovation at a rate of in excess of half a million homes per week. The scale of the investment needed to meet this challenge is huge and cannot be achieved by the public sector alone. The EU's mortgage markets have a central role to play in this regard. The real breakthrough of a net-zero Europe will come through the large-scale use of green mortgages, as highlighted by the Energy Efficient Mortgages Initiative (EEMI), which seeks to introduce a greener, sustainability-focused approach to purchasing, renovating and living in homes by way of an 'ecosystem' aligning the interests of lenders, investors, SMEs, utilities and, above all, consumers. Higher capital costs for mortgage lenders triggered by a 72.5% OF would undermine this role and these efforts.

**Conclusion N°4: An average capital increase of 44% for IRB commercial mortgage exposures requires a treatment similar to residential mortgage exposures based on hard test requirements**

The traditional commercial mortgage business of IRB banks will be charged with a capital increase of 44%. Additional capital charges of 26% for mortgage loans to SMEs are also substantial, although these exposures benefit from the SME supporting factor. Both figures represent a material burden for the funding of the real economy. Many economic sectors and their growth capacities will be affected.

Corporate mortgage lending will be fundamental to the transition towards a climate-neutral economy and the implementation of national housing policies. It is a major catalyst for the development of an ecosystem comprising a broad spectrum of stakeholders which can support financial stability and the attainment of the 2050 emission targets, in line with the EU Green Deal and the Renovation Wave Strategy. More specifically, commercial mortgages, together with households, are paramount for the funding of the renovation of the EU's building stock, 35% of which is over 50 years old and almost 75% of which is energy inefficient. Disproportionate capital increases will hamper the release of funds needed to fight against climate change.

Again, there is no more robust and objective a tool for the measurement of the 'real' risk profile of exposures than loss rates (hard test requirements). Hence, there are no compelling supervisory reasons for not applying the hard test requirement to corporate mortgages as well. In case of compliance with the hard test requirements (0.25%), risk weights for corporate/commercial mortgages should be subject to a similar rationale, i.e. be calibrated in consistency with those for residential mortgages.

**Conclusion N°5: The introduction of an OF of 72.5% presents a systemic challenge for low risk on-balance mortgage business models and for covered bond funding**

As referenced under the 1<sup>st</sup> conclusion, the research provides evidence that the more IRB mortgage lenders are specialised on secured real estate finance, the more constraint they are by the OF. This is particularly valid and possibly surprising compared to IRB institutions whose balance sheets consist of bigger shares of unsecured corporate exposures or even investment banking assets. It is therefore fundamental that legislators and bank supervisors consider the whole value chain of the mortgage lending process and their correlations. The main components are capital cost (profitability), risk profile, on-balance sheet lending, long-termism and long term funding through covered bonds. All these components are strongly correlated.

As regards capital cost, risk profile and on-balance sheet lending, a reduction in the profitability of the mortgage business could incentivise IRB banks to sell their mortgage assets to SPVs and/or reduce new lending.

Off-balance sheet funding would reduce the availability of eligible cover assets for covered bond funding. This would not only represent a threat to the on-balance sheet nature of the EU mortgage business but also challenge the viability of covered bonds, which provide crucial long-term access to global capital markets.

It also appears conclusive that less risk sensitive capital requirements undermine the stimulus for IRB banks to lend to low risk customers but increase the incentives for higher-risk lending. This will not only put upward pressure on the cost of mortgage lending for both households and corporates. Higher-risk lending might also conflict with the conservative eligibility criteria for covered bond funding. Indeed, the OF primarily impacts on those low-risk mortgages which are eligible for covered bond funding in accordance with the new EU Covered Bond Directive (Directive (EU) 2019/2162 on the issue of covered bonds and covered bond public supervision).

It appears rather inconsistent to introduce higher capital requirements for those mortgage exposures which are considered particularly safe by European legislation and therefore suitable as cover assets for the issuance of "European Covered Bonds – Premium" thereby limiting future covered bond volumes and weakening one of the most crisis resilient funding instruments which on the other hand is supposed to be promoted and further strengthened by the EU Covered Bond Directive.