

The Importance of Internal Models for Credit Risk Sharing

Internal models are essential for banks to properly model credit risk and consequently they allow investors to better assess, monitor and manage this risk.

The advanced internal ratings-based approach (IRBA) to credit risk allows banks to develop their own sophisticated internal models to determine the inputs for capital charges on their credit exposures. Under the advanced IRBA, banks can model the probability of default (PD), loss given default (LGD) and exposure-at-default (EAD) levels which are essential for understanding the risk of a credit portfolio. These internal models enable banks, and consequently investors in the credit risk originated by these banks, to gain the most comprehensive understanding of credit risk within the portfolio.

Internal models are also an integral part of the Basel III rules which, although published in 2017, have not been fully implemented yet. Unfortunately, the recent proposals for the application of the Basel III standard in the UK (Basel III finalisation) and in the US (Basel III Endgame) include strict restrictions on the use of internal models for regulatory capital calculation purposes. While the UK PRA proposes to limit their application, the US regulators went a step further and proposed a complete removal of internal models.

As a long-term investor, we see this as a potential negative impact on credit risk modelling practices, as well as on the availability of risk metrics and historical data to investors in exposures on banks' balance sheets. In the below we explain why we care about internal models, our concerns about restricting the use of IRBA for banks and the impact of restricting the use of IRBA on CRS.



Why and how we invest in Credit Risk Sharing

In credit risk sharing (CRS) transactions, also known as “on-balance-sheet securitisations” ‘significant risk transfer transactions’ or “capital relief transactions”, a bank buys credit protection on a portfolio of loans from an investor. As an investor in CRS, we typically take the first loss exposure to a bank’s core credit portfolio and reimburse that bank for credit losses on this slice of their overall loan book. This is done synthetically, meaning the underlying loans are not transferred and remain on the bank’s balance sheet. By transferring the exposure of the junior tranches to investors, the bank can benefit from regulatory capital relief.

The benefits of our transactions are mutual: they provide us with an opportunity to generate attractive total returns through unique credit exposures not available in public markets. For banks the transactions allow them to free up capital and manage their (illiquid) credit exposures more efficiently. CRS transactions also help the banking sector to manage and spread its credit risk exposures in a sound way, leading to less systemic risk and a more sustainable financial system.

Our investment process focuses on obtaining an in-depth understanding of a bank’s strategy, origination and credit risk management processes, so there is a genuine sharing of risk between that bank and us as investor. To this end, understanding the credit risk of the underlying portfolio is best achieved based on sophisticated internal models.

As a pension fund asset manager, by our nature we have an investment horizon that stretches decades rather than years or months. Therefore, the long-term viability and sustainability of the CRS market is of the utmost importance to us.

Why we care about internal models

As investor in CRS, we share in the credit risk of more than 15 banks, active in all parts of the globe. Before each investment, we perform comprehensive due diligence of the bank’s loan underwriting, credit risk management, and ESG policies – but also of their rating and loss-given-default models. Through due diligence at various banks over the last 18 years, we have learned that a variety of well-performing PD and LGD models is in use.

Banks are uniquely capable of modelling the individual components of credit risk. After all, banks typically have long-term relations with their clients, providing multiple products and services. This allows them to monitor clients on an individual and portfolio basis over time. Combined with extensive experience to lending in particular markets and industries, this leads to a wealth of current and historic performance data which makes it possible to model and test appropriate PD and LGD assumptions. The development and usage of these internal models for regulatory capital purposes is subject to rigorous regulatory supervision.

As part of our due diligence process, we always check the track record of these models. If we are not comfortable with the model performance, we do not invest. That said, we are generally



impressed by the strength and sophistication of banks' credit risk modelling, and the robust governance set up to make sure these models remain in the best possible shape. Overall, banks have shown that their own PD and LGD models are highly effective for estimating expected losses.

Developing and maintaining sophisticated internal models requires a significant investment by the banks. Through these models banks have a comprehensive and detailed view of their portfolios and risk drivers thereof. This filters through into efficiency of capital allocation, as it provides banks with clear guidance how to optimise the allocation of scarce capital to their clients in a risk-sensitive way. Efficient capital allocation benefits economic growth as firms which are well-managed, with sound financial performance and a robust capital structures will be prioritised in attracting the capital required to grow.

Our concerns about restricting the use of IRBA for banks

The aforementioned restrictions on using internal models for credit risk capital requirements do not contribute to the goals of the Basel standards. As described above, we strongly support the use of internal models, because this approach incentivises banks to model, monitor and manage the risk factors constituting the expected loss profile of exposures on their balance sheets in a holistic and comprehensive way. By permitting banks to apply modelled PD, LGD and EAD metrics, as foreseen under the advanced IRBA, banks are incentivised to develop and maintain robust models for these metrics.

Under the new proposals in the US, none of these metrics would be modelled as they're replaced by fixed risk weights. In the UK, only PD would still be estimated using internal models, while LGD and EAD are prescribed. Consequently, less attention will be paid to modelling the factors which determine expected losses. The loss of time spent on modelling expected losses will reduce the overall quality of risk management and can potentially adversely impact credit underwriting standards and decisions.

A key concern regarding restricting the use of internal models is the impact on banks' view of risk. When all banks apply the same model and do not spend the time developing their own models, they will have the same, more superficial, assessment of credit risk. Banks will benefit less from detailed modelling of expected losses, and may therefore miss certain risk factors. Admittedly, this can also happen when banks do develop internal models. However, by having each bank create their own model, a diverse range of risk views emerges. Each bank assesses their own set of risk factors, which is uniquely based and calibrated on their typical client base. As a result, a variety of risk factors are under scrutiny across the banking system.

When banks are no longer developing internal models, they will all focus on the same risk factors. That is, the variables that go into the standardised model of credit risk. This increases systemic risk: all banks look at the same threats, and hence all miss potential other dangers that are not incorporated in the standardised approach. As a result, when such an unforeseen risk materialises, many banks will suffer and financial stability is jeopardised. A diversity of risk views is the best protection against systemic risk.

In addition, the disapplication of internal models may impact the underwriting decisions of banks, as they may be incentivised to pursue business with a higher risk profile. If more prudent underwriting does not lead to a decrease in RWA consumption and hence does not result in a higher return on capital, there is a risk that banks apply less rigour in debt sizing and loan structuring. In the extreme, banks would lend mostly to the riskiest borrowers that fit within the general corporate exposure category, as return on capital would be highest on those loans. While we do not expect nor observe this behaviour in the short term, these incentives may start influencing strategy over time - a sliding scale which should be avoided.

The impact of restricting the use of IRBA on CRS

Besides an overall negative impact on the risk management practices at a bank, restricting the use of internal models can also be detrimental to issuing CRS transactions. As an investor in blind-pools¹, we highly value precise and granular risk metrics developed by banks and access to the historical data to calibrate the models. In a blind-pool transaction, the banks' assessment of the risk profile of the borrowers, captured by an internal rating and modelled LGD, are key data points for analysing and monitoring the risk profile of the portfolios we are protecting. As mentioned, these metrics are subject to a thorough due diligence process, in which we analyse the historical track record to assess the performance of these metrics through the cycle. We combine this analysis with a qualitative overlay on the bank's origination and risk management organisation in order to come to a view on expected losses in various economic scenarios. As stated above, the restriction on the use of internal models will have a negative impact on the development of these valuable data points and therefore the ability for investors to properly assess the risk profile of underlying portfolios in CRS transactions.

In addition, the incentive to change underwriting strategy to other and riskier loans leads to uncertainty about the stability of underwriting and risk management practices. This would further invoke uncertainty about the representativeness of historical track record data, which were realised under a different capital regime with different incentives. And an increase in uncertainty (that is, risk) always leads to a higher required return, meaning a higher cost of protection for banks.

So, next to the above mentioned negative effects on banks' credit risk management and underwriting practices, the removal of incentives to maintain sophisticated internal models can result in not being able to access CRS transactions as a valuable capital and credit risk management tool and the associated benefits for bank stability and economic growth.

Conclusion

Sophisticated internal models developed under the Basel's advanced IRBA are crucial for understanding the credit risk of a loan portfolio. Internal models enable banks, and investors in CRS, to have the best grasp of credit risks in the portfolio. The more we disincentivise such approach to risk, the less likely it is that banks will develop and/or maintain their internal models. If so, this will be detrimental to effective risk management, leading to less investor confidence in the banks' lending business. A risk for banks and the credit risk sharing market.

¹ Meaning we do not know the names of the borrowers in the reference portfolios for which we provide credit protection. We believe that our risk sharing partner banks are better equipped to originate and manage credit risks and that we do not add value by knowing the names of the borrowers in the reference portfolio and replicating the rating of loans ourselves (the latter is generally referred to as a 'disclosed pool' transaction). To read more about our approach to CRS, please visit our website: [Credit Risk Sharing at PGGM](#).