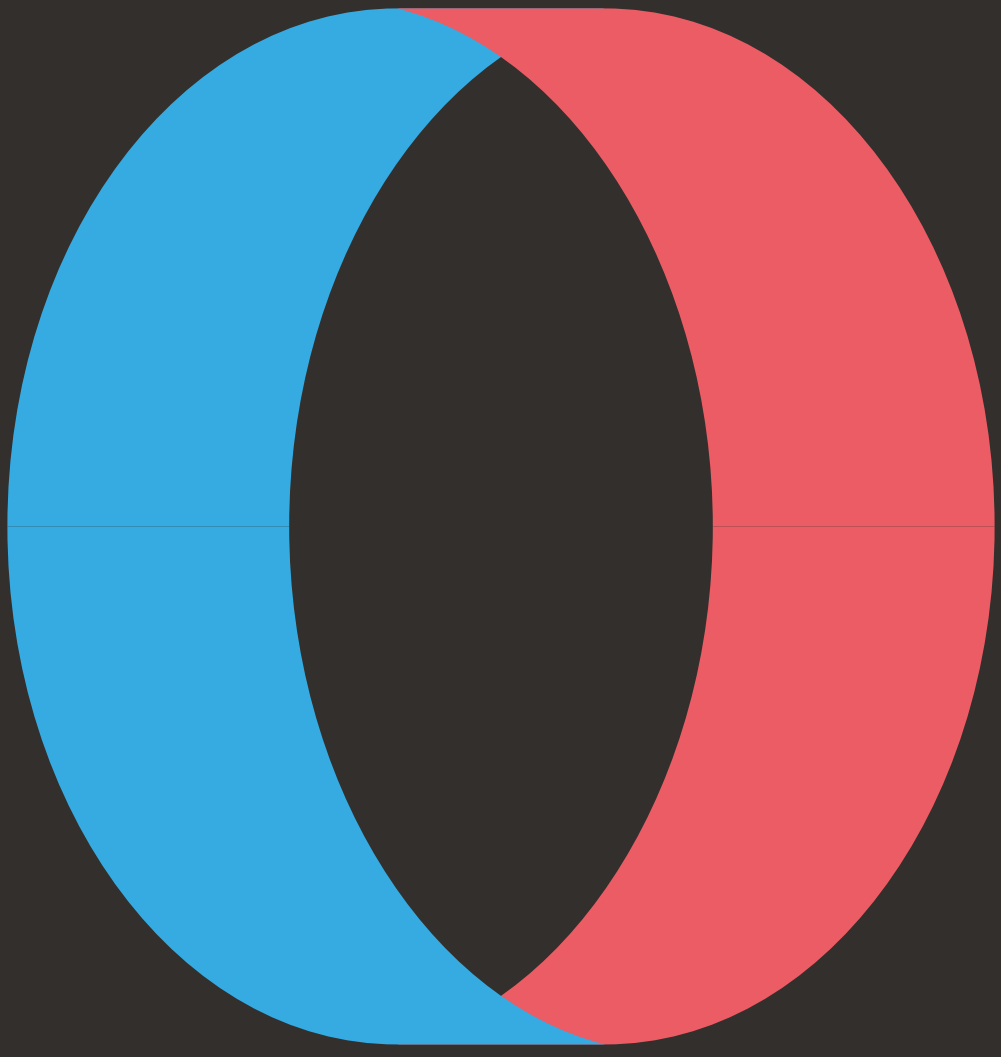
IRB

Six reasons to transition amidst a world of changing regulation



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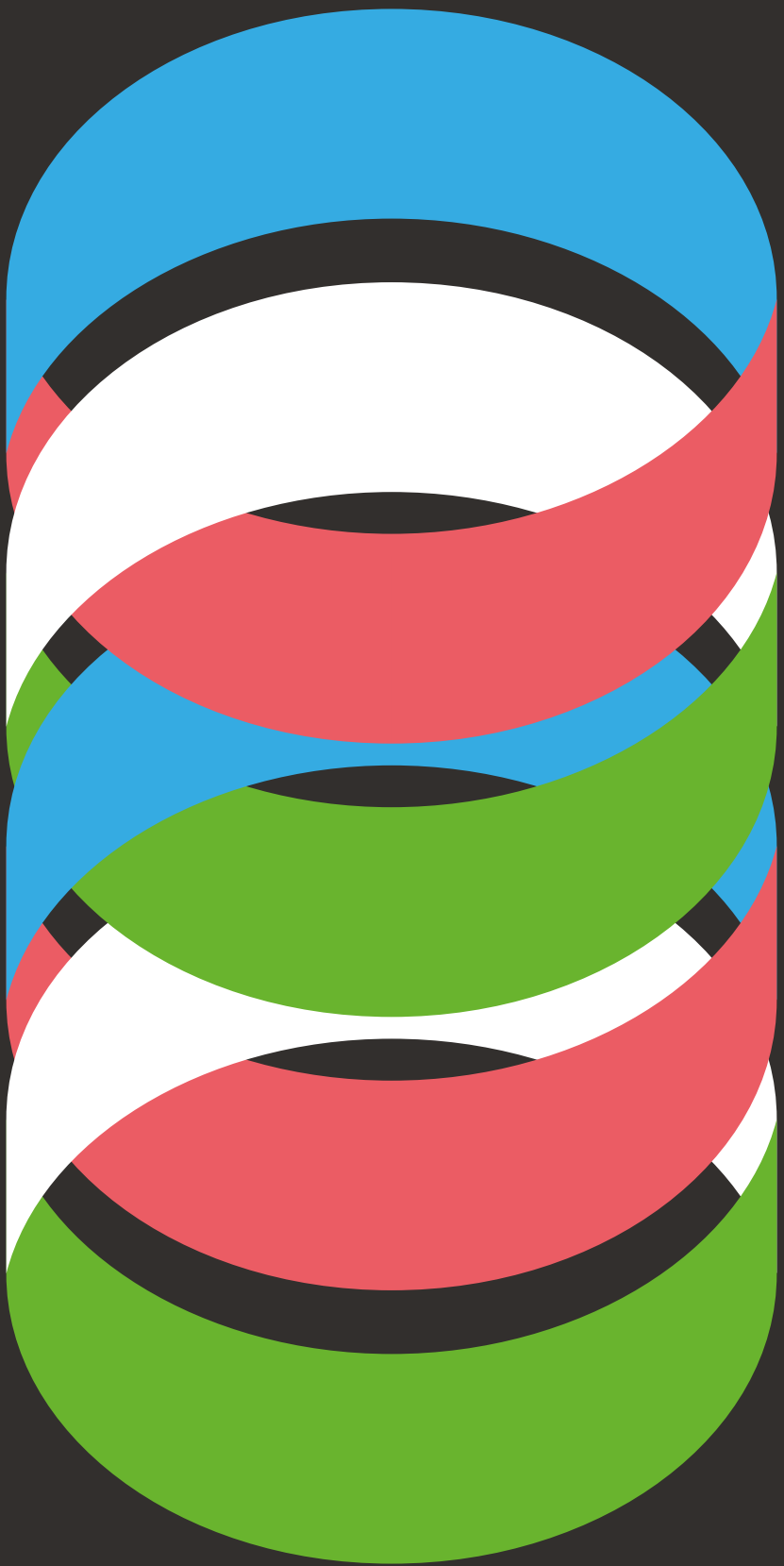


Section One

Introduction

Regulation changes in 2017 have opened the door to IRB for many small to medium firms.

Fewer data restrictions and a shorter implementation period will make IRB more accessible than ever before.

Additionally, implementation of IFRS 9 has meant firms now have a platform to launch an IRB programme. Both of these changes mean the costs associated with IRB are considerably reduced. An industry-wide review of capital strategy has been initiated as a result of changes to the amount of capital required under the standardised approach, with implementation due in 2022.

This means a re-assessment of long-term capital planning is a vital exercise in 2018 for all firms, and part of this must consider whether IRB is the right path.

This whitepaper summarises what the Internal Ratings Based approach is and identifies the six reasons why now could be the right time to transition to IRB:

1. The Capital Benefit
2. Increased Internal Expertise
3. Model and System synergies
4. Improved Data Management
5. A sign of Sophistication
6. Improved Governance

We hope you find this whitepaper useful. If you have any questions or would like to talk through what the regulation change means for you, call us on **0333 370 6600** or email us at **risk@jaywing.com.**

Section Two

A short history of IRB

The Internal Ratings Based (IRB) approach is the alternative to the Standardised Approach (SA), both of which are used to calculate a firm's credit risk capital requirement.

IRB allows firms to use their internal risk management practices and models to calculate a more accurate capital requirement than the simple risk weight percentages prescribed by the Standardised Approach.

IRB was introduced into the capital framework by the Basel Committee for Banking Supervision (BCBS) in Basel II in 2004 and has since become an integral aspect of managing the risk for most large institutions.

Basel II identified the broad framework for IRB which subsequently became European law under the Capital Requirements Regulation (CRR).

IRB is further split into two forms; a Foundation (F-IRB) and Advanced (A-IRB) approach. Under the Foundation approach some aspects of the IRB calculation are pre-determined reducing the benefit but also the modelling requirement. The type of exposures which can utilise either the F-IRB or A-IRB approach is set in the Basel II framework.

Because of the reliance on internal risk management, permission to use IRB to set capital requirements must be explicitly granted by each firm's local supervisor following a detailed review of the internal models and evidence of these being used and maintained.

For any UK based firms, the PRA provide guidelines on the development of IRB models and are responsible for granting approval.

The IRB approach was created and introduced with two objectives in mind:

1. **Improve risk sensitivity in capital requirement:** Under the standardised approach there is little capital incentive for firms to reduce risk in their lending profile. They will often be required to hold the same capital amount for quite a variety of risk types.

   IRB improves the risk sensitivity, encouraging firms to consider risk more appropriately when offering lending.

2. **Incentivise better risk management practices within institutions:** Similarly, under the standardised approach, firms see little capital benefit from investing in their risk management. However, there is a significant benefit to the wider economy from safer banks and more informed lending.

   The IRB approach internalises this benefit, giving firms a big incentive to improve their risk management expertise.

These objectives remain central to the purpose of IRB even over a decade after the initial introduction and still highlight the key benefits of a move to IRB.

Since IRB was introduced, the process has gone through many amendments and the PRA guidelines have been adjusted over the past decade.

This means the complexities to developing IRB models are better understood than ever before.

Section Three

Why the focus now?

New regulation and IFRS 9 changes the cost-benefit ratio

Regulation has dominated firms' agendas over the last few years with priority being compliance over profitability. With IFRS 9 going live in 2018, firms should be able to switch focus back to growing their businesses in an era of mounting competition.

Moving to IRB status is one of the key ways firms can increase profitability by optimising their capital requirement to increase the amount they have available to lend. All of which benefits the institution's shareholders, customers and the wider economy.

As well as acting as a certificate of sophistication for a firm, IRB also opens up a number of other significant benefits, ranging from improved internal risk management processes to enhanced data and system capabilities.

These benefits have existed since IRB was originally introduced, however the last two years have bought refinements in regulation which will have shifted the cost-benefit ratio in favour of IRB for many firms.

Specifically:

1. In October 2017, the PRA issued new guidance aimed at encouraging smaller firms to consider IRB. The key changes include:

   - Increased permissions to use external data to supplement internal data to build long-run models. The guidelines include additional detail on how to assess comparability of external data to a firm's portfolio, benchmarks where external data is not available and considerations on how to apply conservatism when necessary.

   - A shorter approval period (the experience test) from model development to use in capital calculation.

     The guidelines around evidencing use of model components and the length of time the components must be used and monitored internally has been refined. This means the benefits of an IRB project can be realised earlier than before, making the project much more cost efficient.

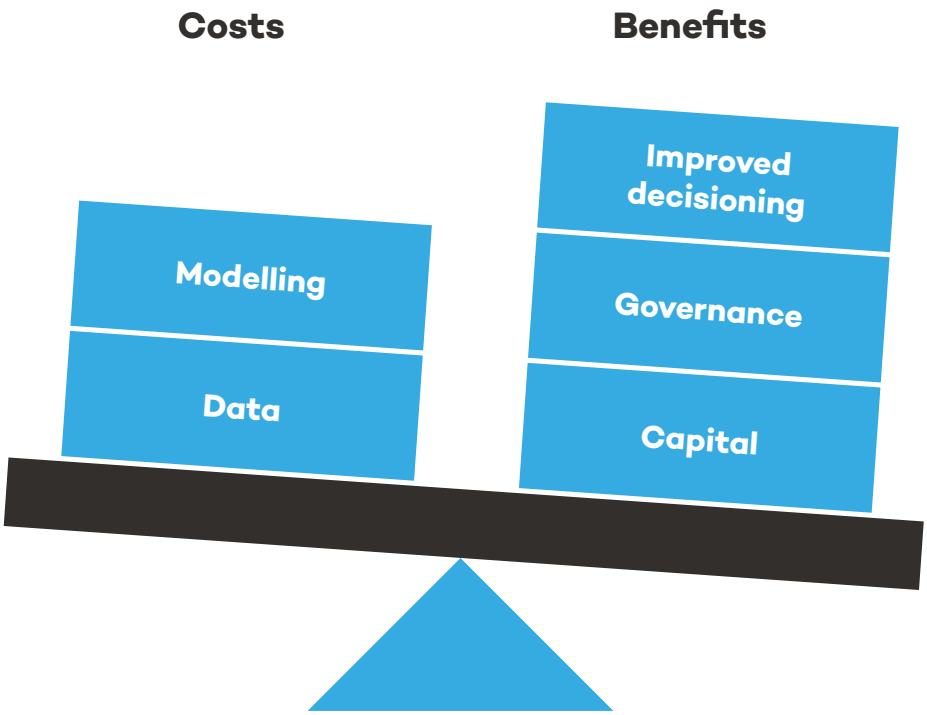
2. In December 2017, the Basel Committee on Banking Supervision (BCBS) finalised the standardised approach under Basel III including new and higher Risk Weights for some assets from January 2022.

   For some firms this could mean the benefit of IRB is larger than before. For all firms it means now is the right time to reassess their long-term approach to capital management and put the right framework in place ahead of 2021.

3. Additionally, most banks and building societies have improved their model landscape through their IFRS 9 developments. Most likely, firms will already be using variations of PD, EAD and LGD models for their IFRS 9 models, meaning the additional development work for for IRB has changed dramatically.

   Whilst the requirements are different, the IFRS 9 models will provide a very good starting point for IRB.

These changes mean IRB is now more accessible than ever and a new assessment of the benefits is a must for all firms in 2018.



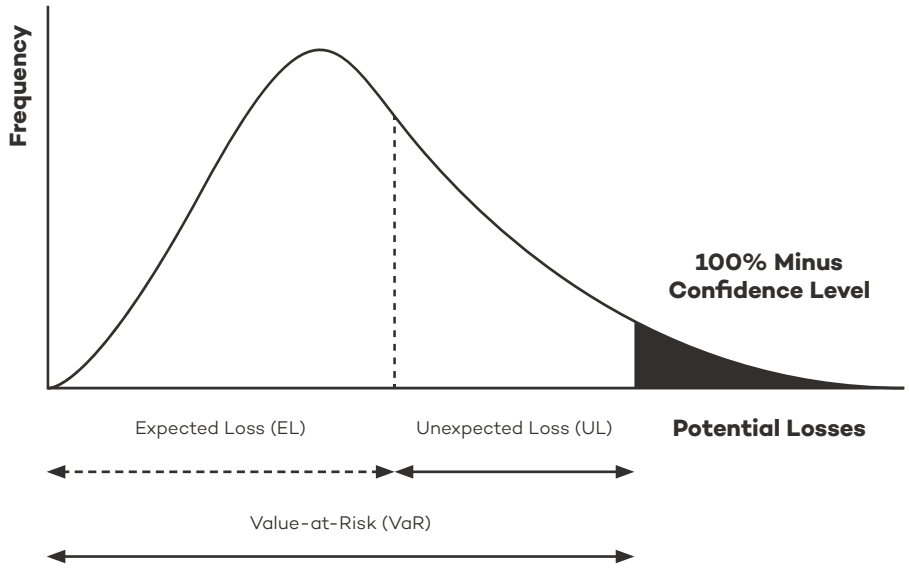
Section Four

A guide to IRB

The principle of the IRB calculation is to utilise a firm's internal predictions of risk. Combining this with a pre-defined formula generates an estimate of the potential maximum loss the firm could incur.

This can be thought of as the variation of loss events that could occur through an economic cycle and can be imagined as a frequency distribution of loss events around a firm's best estimates of the most likely (or expected) loss.

By doing this, it is possible to identify the range of loss events which are appropriate to each firm and require the firm to hold capital which ensures the firm remains solvent if 99.9% of these loss events occur.

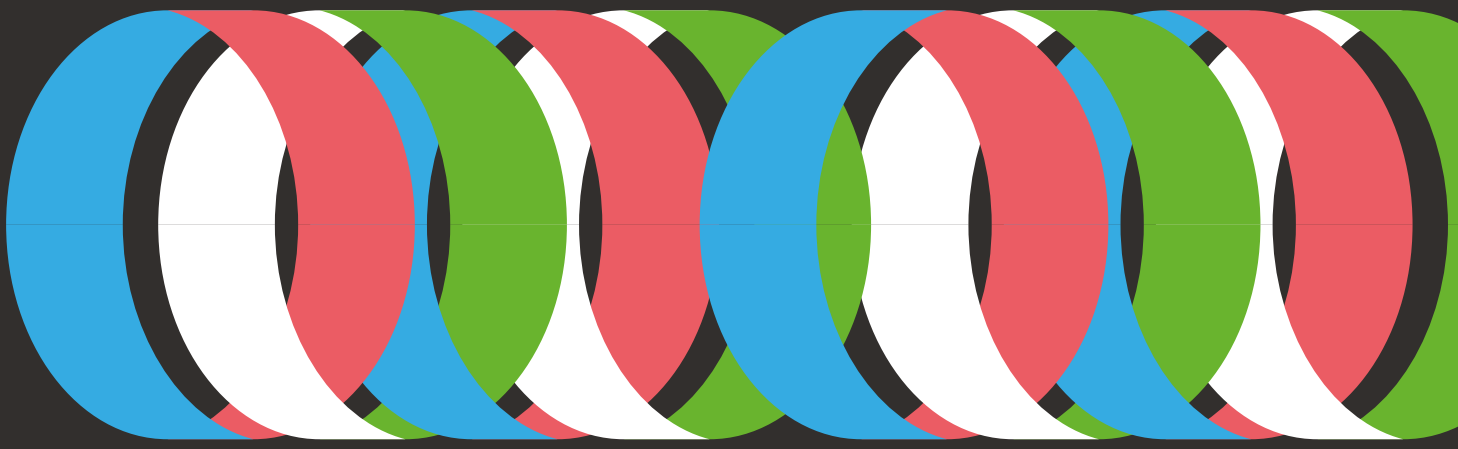


The figure illustrates the estimation of the loss distribution underpinned by the IRB formula.

Firms' internal estimates predict the point of expected loss for their portfolio (the dotted line). This is set as the average expected loss through an economic cycle for a given portfolio.

Using a pre-set formula, the expected loss can be extrapolated to estimate a loss frequency distribution (the curved line). This covers all the loss events which could happen over an economic cycle.

Using this distribution, it is possible to estimate the maximum loss that will occur in 99.9% of occasions – meaning the firm will remain solvent unless a 1 in a 1000-year event occurs.



As the estimate of capital is based on the total loss events, IRB provides the benefit of a consistent capital requirement through an economic cycle, ensuring capital varies based on the obligor-based risk events only.

To estimate the loss distribution, IRB models must utilise a firm's internal risk management framework. This provides a robust and accurate central estimate of the loss the firm expects to suffer from non-repayment of loans.

The internal risk framework must be converted into the following components, which can then be input into the prescribed IRB formula:

1. Probability of Default (PD)
2. Exposure at Default (EAD)
3. Loss Given Default (LGD)

The main complexity with this is that the view of expected loss must capture the underlying risk profile of the firm and reflect historical information.

For PD, this means the mid-point of an economic scenario which can then be used to form the probability distribution as described above. For EAD and LGD, due to limited historical data it is not possible to estimate the historical loss distribution accurately, so IRB requires these to be worst case (e.g. economic downturn) estimates.

This is primarily where the expertise of IRB modelling is required: modellers must utilise long-run data sources, assess how these are appropriate to the firm's portfolio and adjust these where necessary.

This is not an easy task for a firm with a long history of data and becomes increasingly difficult for newer firms - however these challenges are not insurmountable.

Section Five

The benefits of IRB

Why these may be larger than ever before

1 The capital benefit is substantial and changing

IRB will deliver significant capital benefits to most firms in comparison to the standardised approach due to the more accurate consideration of a firm's underlying risk profile.

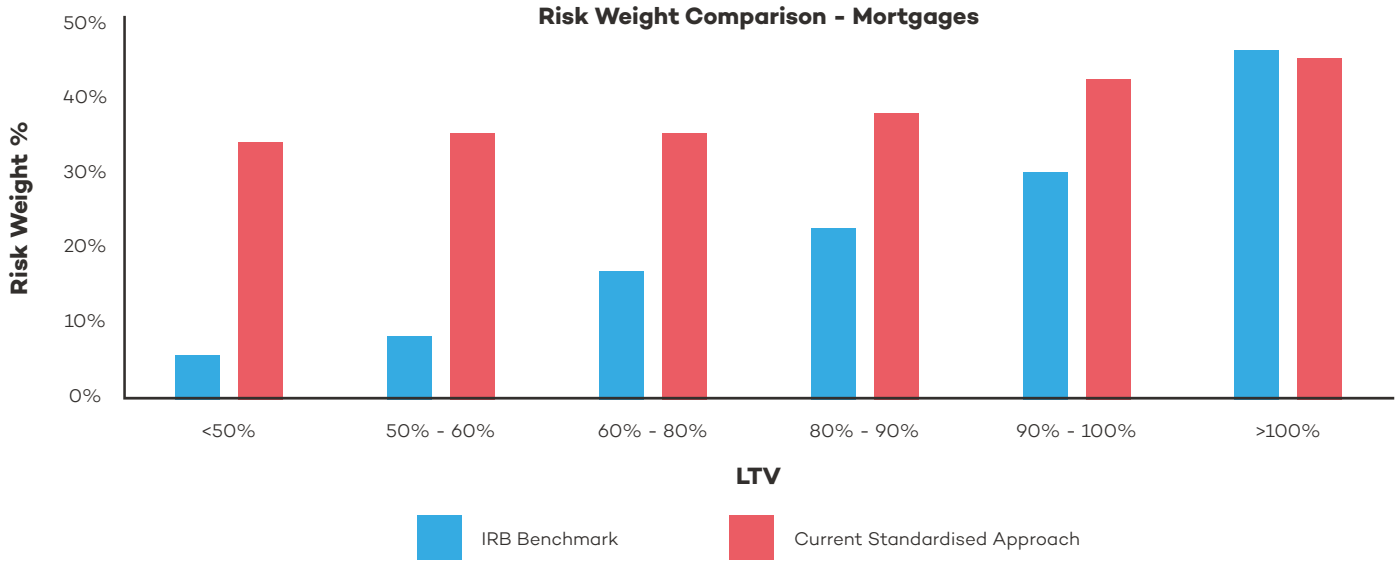
This additional accuracy means that the natural conservatism built into the standardised risk weights is no longer needed.

The exact size of the capital benefit of IRB will vary depending on:

1. the quality of the models built,
2. the data available and the representativeness of this to the firm's current portfolio,
3. the type and variety of lending,
4. the underlying risk of each firm's portfolio.

Despite these variations, a high-level estimate of the difference between capital requirements under the standardised approach and IRB can be considered based on the PRA's industry average benchmarks.

These benchmarks are provided based on a range of UK IRB firm's capital assessments.



The benchmarks illustrate that the capital benefits can be substantial and will be dependent on the portfolio mix. Importantly, the capital differences between the two approaches will result in lower costs and the ability to become more competitive in certain markets.

The reduction in capital and the variation by risk segment (e.g LTV) will allow firms to increase their profitability in other areas, allowing them to widen risk appetite.

As such, the change in capital requirements has a two-step impact on a firm's competitiveness: it increases the amount available to lend through reduced capital costs and increases the firm's competitiveness in certain areas.

The capital benefit from IRB should not be seen as one-off, but rather a consistently increasing circle. Less capital being consumed by the business will lead to lower capital costs, which increases competitiveness and allows growth.

A larger firm can develop more sophisticated models and evidence enhanced risk management processes which again leads to reduced capital requirements.

As a final consideration, it shouldn't be forgotten that the PRA considers credit risk add-ons as part of the pillar 2 capital requirement. The purpose of this is to assess whether there is a risk of under capitalisation using the standardised risk weights.

The PRA's starting points for this assessment is a comparison to upper-estimate, conservative IRB benchmarks.

This means firms must be able to assess the likely capital requirements for their portfolio under IRB, to a reasonable level of confidence, to provide a robust defence to a potentially substantial pillar 2 add-on.

Therefore, for firms where the benefit of IRB is less certain, a detailed assessment will still be a valuable piece of work in providing a more reliable input in to the pillar 2 process and supporting their total capital requirement.

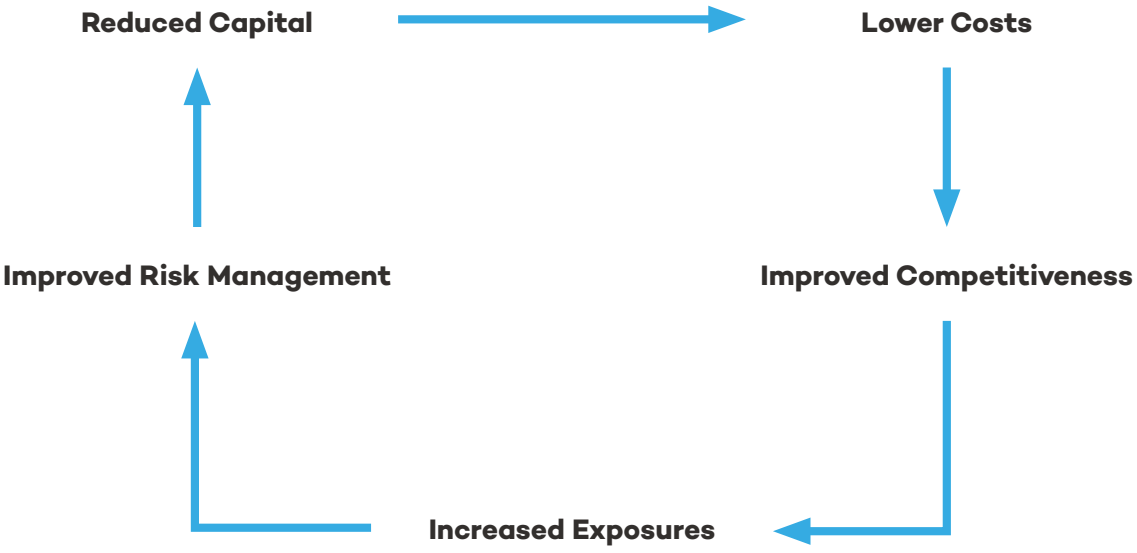
For all firms a review of the benefits of IRB should be a necessary requirement in 2018.

The changing capital requirements

In December 2017, the Basel Committee for Banking Supervision (BCBS) announced changes to the capital requirements under Basel III. The biggest changes are focused on new standardised risk-weights and new output floors. There are also some minor changes to the IRB calculation. The changes are to be phased in from 2022 onwards.

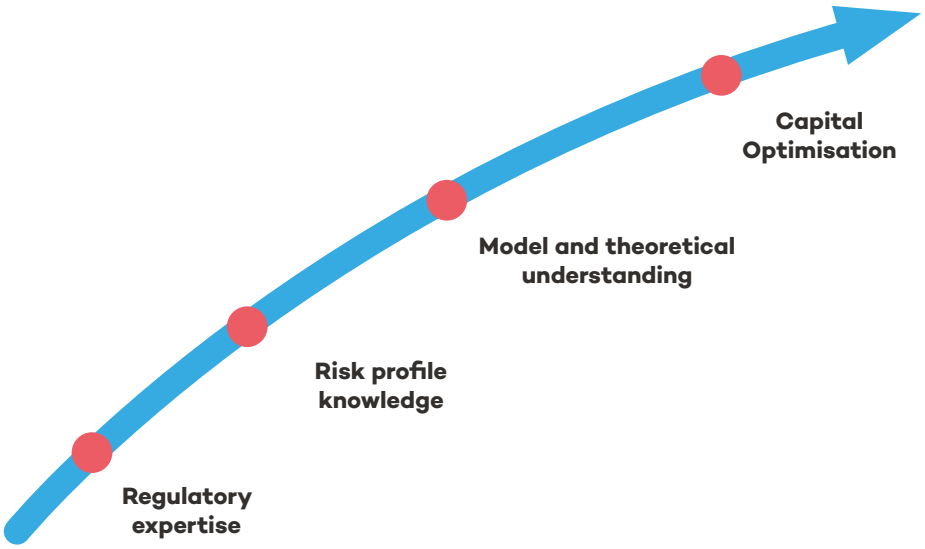
The combination of the new standardised risk weights and the outputs floors may cap some of the benefits of IRB, however the benefits will still be substantial for most lenders. The changes will impact all firms differently, depending on their lending type and risk mix.

For all firms, it is vital to assess the impacts of the Basel III changes, and reassess the potential capital benefits that may be achieved from IRB. Without doing this, lenders will risk facing increased capital costs in areas they are currently competitive without having the ability to increase lending in other areas.



2 Increased internal expertise

Successful capital management teams must develop expertise in capital theory, the regulation and the risk profile of their portfolios in order to optimise their capital requirement.



It can be considered as a simple relationship: the more a firm understands the regulation, understands the level of risk in their portfolio and understands the models which calculate their capital requirement, the more they are able to remove surplus conservatism.

Whilst IRB provides the management tools to increase all three of these areas of expertise, firms embarking on an IRB programme would previously be starting from a fairly low basis.

The good news is, IFRS 9 will have already increased the risk profile and modelling knowledge substantially. This provides a head start for IRB, essentially meaning the benefits can be leveraged earlier.

Model and theoretical understanding:

To develop and use successful IRB models, firms must ensure they understand the theory behind the models. By doing this, the management team will become experts in how the models work, their limitations and where judgement can be applied.

A good base of internal knowledge will have formed through IFRS 9 implementation, and as IRB models are developed, executed and monitored against actual performance the internal knowledge will continue to grow. As knowledge and data increases, the judgements within the models can become more accurate and contain less conservatism, leading to a lower capital requirement.

Whilst the IRB approval process can be strenuous, the exhaustive model and process review by audit and the regulator will ensure a high-quality implementation is produced. This reduces the risk of the firm falling behind their competitors and losing this as a competitive edge.

Risk Profile knowledge:

IRB works on the basis that a firm is aware of and successfully manages their risk profile. As such, a firm looking to successfully apply for an IRB waiver must be able to evidence their risk management expertise as part of the application process.

Over the course of building, validating and implementing IRB models the management team will increase their knowledge of their risk profile.

This will allow them to better understand how their book will move over time and which areas are likely to increase or decrease in terms of risk profile as they mature and the economy evolves.

This understanding can be used not only for capital efficiency, but also wider in the firm. An improved understanding of risk can be utilised to offer more risk sensitive pricing, more efficient collections and recoveries processes, better utilisation of undrawn exposures, more targeted additional lending strategies with many other benefits expected.

Regulatory expertise:

The IRB process is the most sophisticated method available to a firm for calculation of Pillar 1 minimum capital requirements. The firm specific Pillar 2A assessment performed by the PRA addresses deficiencies and underestimations in these Pillar 1 calculations. Potential add-ons for all major sources of risk (including credit, concentration and market risks) are a significant consideration for all firms.

The IRB process increases the accuracy and specificity of a firm's calculations. This reduces the likelihood of underestimation that is present in the generic standardised approach to credit risk that is a key driver in Pillar 2A add-ons. Where a 2A add-on is still a possibility, the increased sophistication in modelling and understanding of firm specific risks garnered through the IRB permission process provides a firm with the tools to present a reasoned, analytical response to any PRA proposed add-on

Further to capital, due to the understanding and wide usage of the IRB models, the expected loss concept of PD, EAD and LGD are the industry leading approach to impairment calculation in IFRS 9.

An improved understanding of the IRB model will therefore have a direct impact on increasing the understanding of the impairment framework.

3 Improved model and system synergies

As previously mentioned, there are strong links between the IFRS 9 requirements and the IRB model. Additionally, the models feeding the IRB calculation are required to be used in the firms day-to-day risk management practices.

To fulfil these 'use test' requirements the models used to decision on new and further lending and maintenance of undrawn facilities are used as the foundation of the IRB model.

Therefore, under IRB the capital, impairment, acquisition and back book management models all become intrinsically linked. These links mean synergies can be found between the models themselves, the data that feeds them and the systems they are executed on.

The synergies can lead to cost savings in 3 distinct ways:

1. **Resources:**
   Rather than individual teams for each of the 4 processes, the modelling and risk management teams will become experts in all areas.

   Over time, the institution's structure can be optimised to make efficient use of this knowledge, reducing the resources required to develop, validate and execute each process.

2. **Systems:**
   As the models themselves are linked, it opens up the possibility to implement all models onto one system with potential for more efficient model execution environment.

   This can dramatically reduce the cost of maintaining and developing multiple systems as well as the governance associated with multiple model runs.

3. **Data:**
   Again, as the models become interlinked, the data required to feed the models will converge. This opens up the possibility to a simplified data structure within the firm; with reduced costs to develop, enhance and maintain.

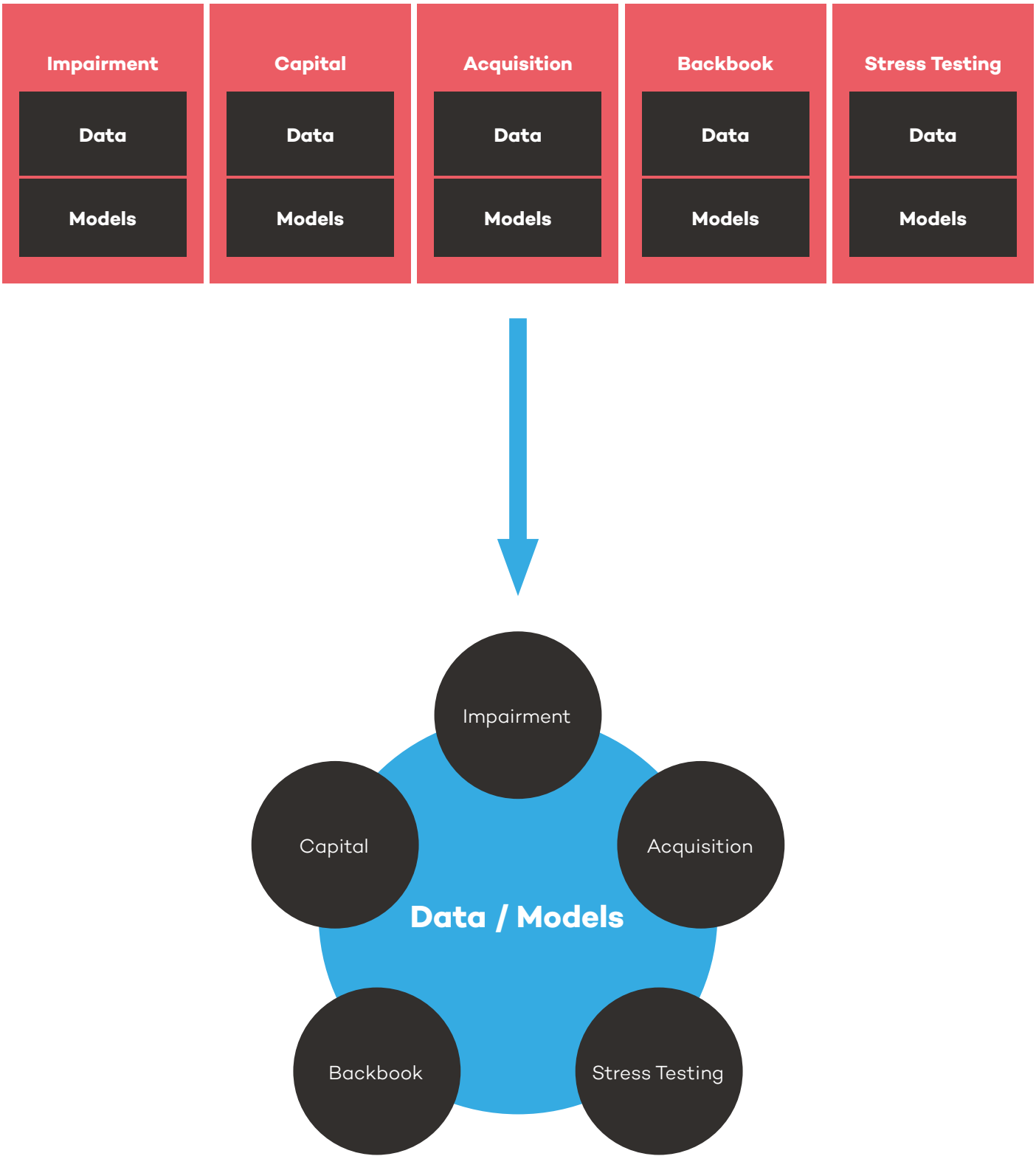
   Additionally, IRB requires enhanced controls and governance around data; by utilising this same data in other models and processes, the risk of poorly captured or maintained data is mitigated. The next section provides a more detailed explanation of the data requirements for IRB.

Whilst these synergies may take time to achieve, they can be factored in to the long-term planning and should form a key part of the benefit assessment of IRB.

Illustration of Credit Risk Management Standardised Approach to IRB

Under Standardised approach, the key components of risk management work in silos, with separate risk models and data requirements.

Under IRB, the risk management framework becomes interlinked. Creating synergies and leading to a more optimal and efficient approach.



4 Improved data management

Data is the infrastructure on which IRB models are developed, run and reported on. Hence, all stages in achieving and maintaining IRB status require a robust and reliable data input.

The approach a firm takes to managing its data will be key to successfully achieving IRB approval.

The data required for each stage of achieving and maintaining IRB status will vary between firm and within firms between each stage in terms of breadth and depth. Such data can consist of any data held by the firm though typically loan and default history data will dominate for IRB.

What is regarded as 'a firm's data' will also vary on the use of external data.

Firm's seeking IRB status but without sufficient internal loan or default history will be required to utilise external data and bring this in to their data management framework.

The data landscape for IRB is therefore variable but, whether using internal or external data sources, there are principles that can be commonly applied to data management to make it both effective and compliant.

All firms have different approaches to managing their data and it is unlikely that 'one size fits all' will be successful in many cases. However, the Basel Committee of Banking Supervision (BCBS) published their standard 239 in 2013 that provides principles that can be used to develop effective Risk Data Management.

The approach is not restricted to achieving and maintaining IRB status but is a useful template.

The standard focuses on three key areas:

People:

Data can only be taken seriously if the right people with the right attitude are responsible for its management. Data needs high level representation and focus within a firm. There are people in every firm who are very good with data – their abilities should be recognised, harnessed and channelled whilst following best practice.

Data management should not be seen as a chore to be undertaken before the exciting work of analysis, modelling and reporting can commence.

Having people who are interested in making data management work will not only go a long way to achieving a high standard of risk data management but will also free up others to focus on analysis, modelling and reporting.

Processes:

Processes (automated and manual) for the provision of data should be as short and simple as possible. Data should be subjected to as few transformations as possible and where such transformations are necessary, they should be fully documented.

Transformations can range from the simple renaming of a data item to complex aggregation, but all need to be recorded to preserve lineage.

The same applies to data quality in that one of the aims for data management should be to provide information on the quality of supplied data and to ensure that this information is maintained. Consistency in the treatment of data is crucial.

Processes also need to be responsive (note that if you have the right people, as mentioned above, half of this particular battle has been won).

Nothing is more likely to encourage data users to develop their own data 'cottage industry' than not being able to get hold of data or to get data issues rectified promptly.

Tactical developments are often necessary, but they need to be incorporated into good risk data management practices as soon as possible.

Knowledge:

As well as firms typically having people who are good with data, they also have people who understand the firm's data very well.

Often, they will be the same people and are the ones who users frequently turn to for advice. Their knowledge needs to be captured and preserved so that it is readily available.

This can be done by the provision of data dictionaries that pull together business descriptions of the data, lineage and transformation information, and data quality metrics – much of this captured, created and maintained as part of the data management processes.

Data ownership is also important and needs to be publicised. Having plenty of information about data and knowing who owns the data will give users confidence not only to use the data but also to report data issues.

Spreading knowledge of a firm's data across the user community will increase the appetite for using data, improve the overall reliability of the data (as 'more eyes' on the data means more issues will be identified) and provide confidence that the data being used for IRB models and reporting are fit for purpose.

Improved data management processes not only addresses potential regulatory compliance issues but also enhances the usability of an firm's data. Having the right people, the right processes and the right knowledge will result in effective Risk Data Management and smooth the way to IRB status.

As the requirements of good data management are not restricted to achieving IRB, the benefits shouldn't be viewed in this context either. Robust and reliable data means the development of better models and improved analytics throughout the firm, leading to better decision making, reduced losses and increased profit.

5 A certificate of sophistication

IRB should be viewed as the gold-standard of capital requirement calculations. It shows that a firm has robust, accurate and validated credit risk models. It provides evidence of successfully managing the portfolio, utilising stress tests and planning for the future.

Most importantly, is shows that all this is authenticated by the regulator.

Whilst it's easy to consider IRB as merely a capital calculation, to investors, shareholders and even customers it's much more than this. A successful application provides confidence that the institution is being managed efficiently, is looking to grow and has the regulator's trust.

This increased confidence can lead to a higher share price or reduced cost of investment. In fact, the mark of IRB is so substantial that many firms will announce to the market their decision to embark on an IRB project as a show of ambition and confidence.

The impact on customers can be significant as well. Greater confidence can lead to a higher credit rating for the firm and a reduced cost of external borrowing; this can be passed on to customers as lower interest rates or just increasing the amount available to lend.

Cascading these benefits can improve the reputation of a firm, by demonstrating a willingness to put customers first with more affordable loans.

For smaller banks and building societies, the change in capital requirements can also allow them to reach in to areas of the market they have previously been unable to compete in, making them able to better support their local communities.

The enhanced reputation with regulators should also be considered as a benefit in itself. Through the IRB application process the regulator will expect to be heavily involved and managing and nurturing this relationship will be key to ensuring the process goes as smoothly as possible.

Regular meetings with supervisors to review internal risk management practices and partially developed models will enable closer working with the regulator.

This will lead to an increased understanding of their concerns as well as allowing management to demonstrate their knowledge and expertise.

By the end of the application process, the regulator's confidence in the management team should have grown significantly, increasing the firm's ability to challenge and respond to other areas of regulator's concerns.

6 Improved governance process

One of the key requirements of IRB approval is evidence of the firm's ability to enhance and maintain their risk management processes, data and models. This is achieved through a robust governance framework and reliable audit trail.

Principally there are four reasons for this:

1. Whilst the PRA will review the models they will rely on detailed internal governance to ensure the capital position presented is an accurate and representative view of the bank and its present and future risks.

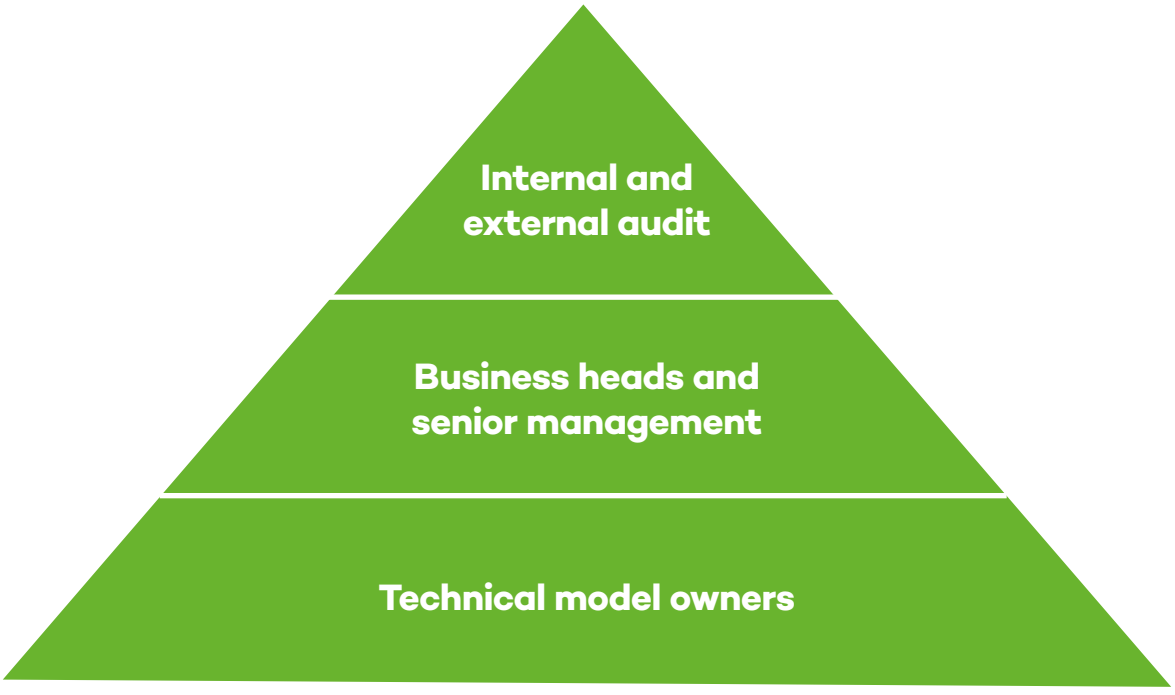
   To do this a robust governance framework must be set up to show the firm fully validates all steps of the modelling process from an independent review and from a business oversight perspective.

2. Part of the IRB requirement is for firms to evidence that they have put robust risk management practices in place. To do this it requires governance forums and an audit trail of discussions to evidence and rationalise decisions.

3. The PRA will grant a waiver for the IRB calculation periodically and so they require a guarantee that the key components of the calculation will not drop below the approved standard in the interim periods.

4. The purpose of IRB is to encourage enhancement of credit risk management, this can only be done through detailed and regular review of the end to end process and its supporting steps.

Because of the spotlight on governance, most firms will need to enhance their governance processes as they go through the IRB approval program. This will most likely come in the form of a 3 lines of defence governance framework:



To support this structure, the lines of defence will require identifying and documenting, governance committees will require strengthening, the second line may require additional expertise and the target operating model may require a thorough review.

Whilst these may seem like substantial changes, the enhanced governance structure will provide considerable additional benefits:

- **More efficient structure:** Through designing the new structure, the firm will have the opportunity to streamline its approach potentially identifying significant areas for economies of scale.
- **Communication and collaboration:** Governance committees opens up the opportunity for different areas of the business to get together and make unified collective decisions that will be fundamental to the growth and direction of the whole firm.
- **Capital Savings:** The three lines of defence will minimise the risk of errors in the capital requirement calculation. The ability to evidence this will increase regulator and audit confidence in management, this is key in the Pillar 2 process and could lead to reductions in the need for conservatism in capital and impairment calculations.
- **Understanding and expertise:** Enhanced documentation will increase understanding, removing complexity and reliance on individuals. The second line will also ensure the IRB models are consistent with risk management expectations increasing the overall expertise in the firm.

Section Six

The costs and challenges

How these can now be overcome.

1. The data problem

As section three explains, the theory behind an IRB model is reliant upon the ability to predict a "Through the Cycle" (TTC) expected loss.

Where this can't be produced reliably for EAD and LGD, the regulation requires the estimation of a downturn or "worst case" estimate.

In either case a long history of data is required. For the TTC PD model, the data must capture the effects of a full economic cycle, for the case of UK mortgages this is defined as including the early 1990's recession.

For the downturn LGD models, the modellers must evidence that the models represent a reliable worst-case component.

This suggests that the data sample encompassing 20 years is required to build IRB models; most challenger firms simply won't have this history of data.

Secondly, for many smaller and newer firms, given the low interest rate environment experienced over the last 10 years and the tightening of risk appetite, many firms have little to no defaults to build models to assess the level of risk in their book today.

As these models are required as a starting point for the IRB calculation, this has previously been a major stumbling block for these firms.

The solution to this problem is to utilise external data sources, which can come in a range of forms, and is now permitted by recent changes to the regulation.

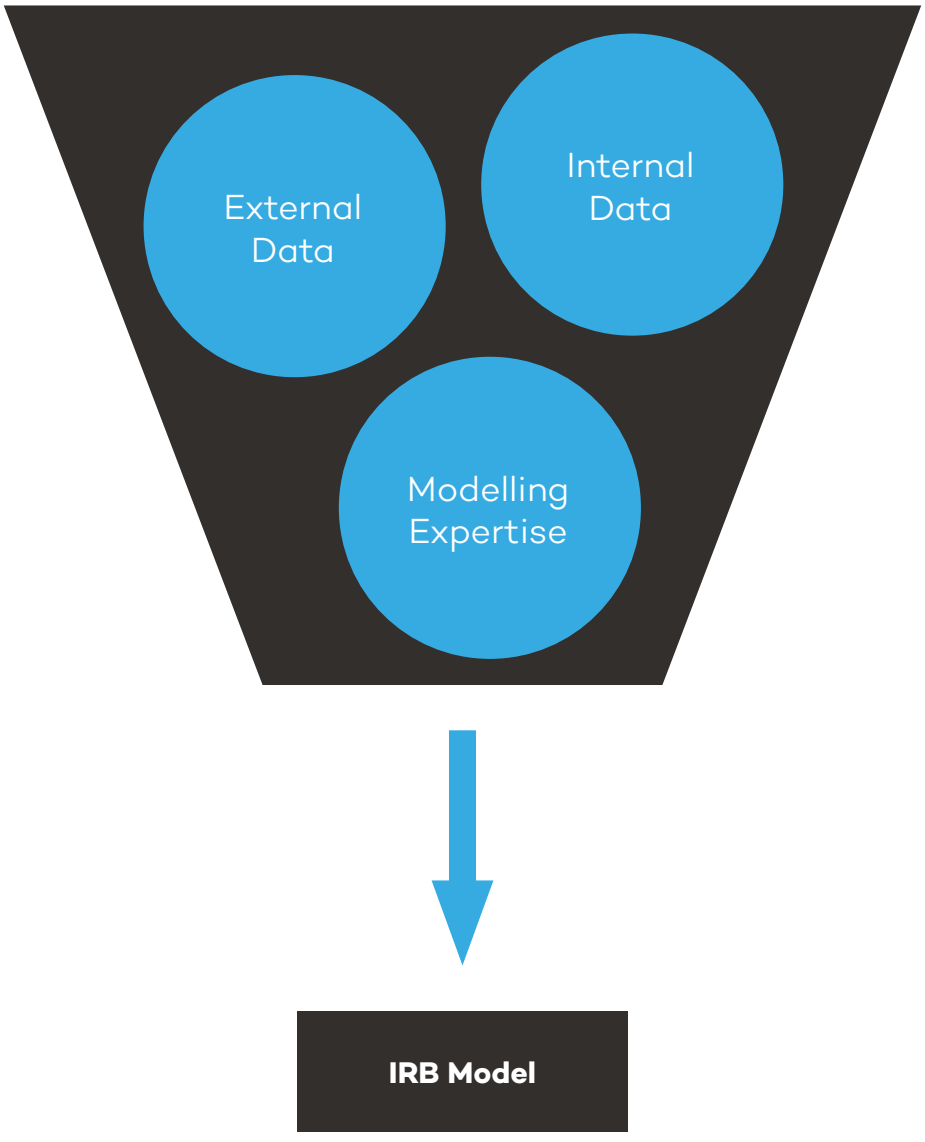
The complexity is in sourcing reliable and relevant external data and that in developing the model the firm must demonstrate that this is an appropriate representation of how their portfolio would have behaved.

The PRA have addressed the complexities of accessing IRB with recent changes to the regulation; the main driver for these being the recognised reduction in competition in certain markets.

The PRA statement issued in October 2017 (Policy Statement 23/17), provides clear guidance on how external data can be used to supplement internal data in the rank ordering of risk and how historic macro data can be used to estimate TTC PD levels for a portfolio.

For LGD, where sufficient internal and external data doesn't exist the policy statement provides a view on how these models can be benchmarked and developed over time as the data increases.

The challenges of sourcing the right data and evidencing its relevance remain, however the recent changes have opened up the possibility of IRB to firms who had previously discounted it due to insufficient data.



2. The model development requirement

A successful IRB model development programme requires substantial knowledge, expertise and experience. This will be needed within the team to develop and oversee the modelling, in second line to challenge and review the models and in the wider management teams to utilise the models efficiently.

For many smaller firms, this has historically been a major problem. The cost of developing an internal modelling function can be large, modellers are a skilled resource and are in high demand given the need for these niche skills in the market.

There is no quick fix to instilling a modelling culture within the management team; it requires years of experience, trial and error and training to develop the right approach to managing a model focused institution. All models have limitations and understanding these is crucial. Management need the expertise to know when to trust the models, when to add judgement and when to redevelop.

The good news is that unintentionally, most firms have been building this expertise through the development and usage of IFRS 9 models.

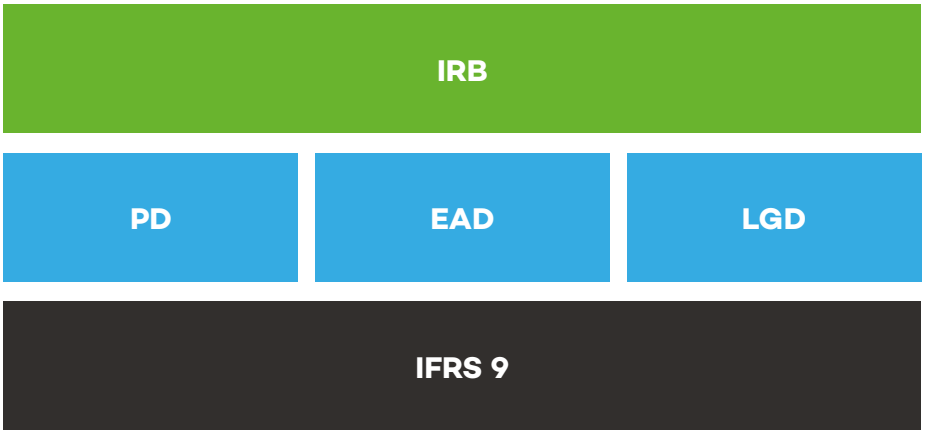
IFRS 9 requires firms to assess a probability of default for all borrowers as part of the assessment of significant deterioration. This means for all but the smallest firms, a form of PD model will already be in place within the institution. For most, the IFRS 9 models will also be based on the principles of EAD and LGD models as well.

This means the key components for IRB modelling will already be in place – IFRS 9 can be thought of as the foundation to the IRB models.

The requirements of IRB and IFRS 9 are different, IFRS 9 models require a lifetime loss estimate as well as a 12-month loss estimate, the estimates must reflect a forward-looking approach and must be sufficiently point-in-time.

As a result, the models will require amendments and additional development to satisfy the TTC and downturn requirements of IRB. However, the existence of IFRS 9 models means the amount of development work is substantially lower, meaning the resource required and cost associated are also reduced.

Utilising the current IFRS 9 models also means the expertise requirement for management and the second line teams is partly already in place given that these models are already in use for reporting purposes. Hence, the knowledge gap to successfully managing an IRB model framework is greatly reduced, meaning less cost and effort to close this gap during the test and usage period.



3. The cost is high, and the benefits are uncertain

It can be difficult to justify and commit to an IRB project when the capital benefits are uncertain. As described in section 3, the financial benefits are likely to be significant but the exact size of these are dependent on several factors, including the availability to source relevant data and the quality of the models at the end of the development.

Additionally, some of the other benefits discussed in the previous section can be difficult to quantify.

Within most firms, costs are tightly controlled, and large projects are only commissioned when the benefits are certain. This can make achieving internal buy-in for an IRB development challenging, especially when it will involve substantial upfront costs such the purchase of external data or an increase in modelling resources.

The solution to this is two-fold:

1. Where the benefits are uncertain, the move in to IRB can be gradual. Initial impact assessments can be carried out through IRB simulations using very basic models using internal data.

   Whilst it won't be possible to accurately estimate the capital requirement at this stage, a range can be given with confidence intervals to support the cost benefit analysis.

   Regular impact assessments through the initial stage of the project, good project planning and milestones can be used to ensure that the project delivers a substantial benefit.

2. Synergies from the IRB development can be maximised to optimise work to ensure the benefits are recognised as quickly as possible. For example, the initial modelling work can be used to support the firm's Pillar 2 capital assessment providing an alternative calculation to the standardised approach.

   External data can be used elsewhere in the business, for example to support and validate impairment models, acquisition models and pricing.

   The investment in data management and improved governance will begin to deliver immediate benefits from better decisions and fewer anomalies throughout the firm.

By developing an IRB programme that utilises all the benefits of IRB, the constraint of high costs is possible to manage.

4. The elapsed time

Designing, developing, validating, implementing and internally approving an IRB model is likely to take over a year, with a requirement for firms to evidence their ability to use an IRB approach effectively over at least a three-year period.

This means the elapsed time from the commencement of an IRB programme to approval of the waiver can be several years.

As discussed in the previous section, when reviewing the business case for an IRB programme, the trade-off between up-front costs and long-term benefits can be difficult to accept.

The good news is that recent changes mean this approval process has been dramatically shortened. In the PRA's updated guidelines on developing IRB approaches, they reviewed the experience test criteria and issued new guidance related to this.

The changes provided clarification on what constitutes a successful experience test; specifying that a firm must evidence:

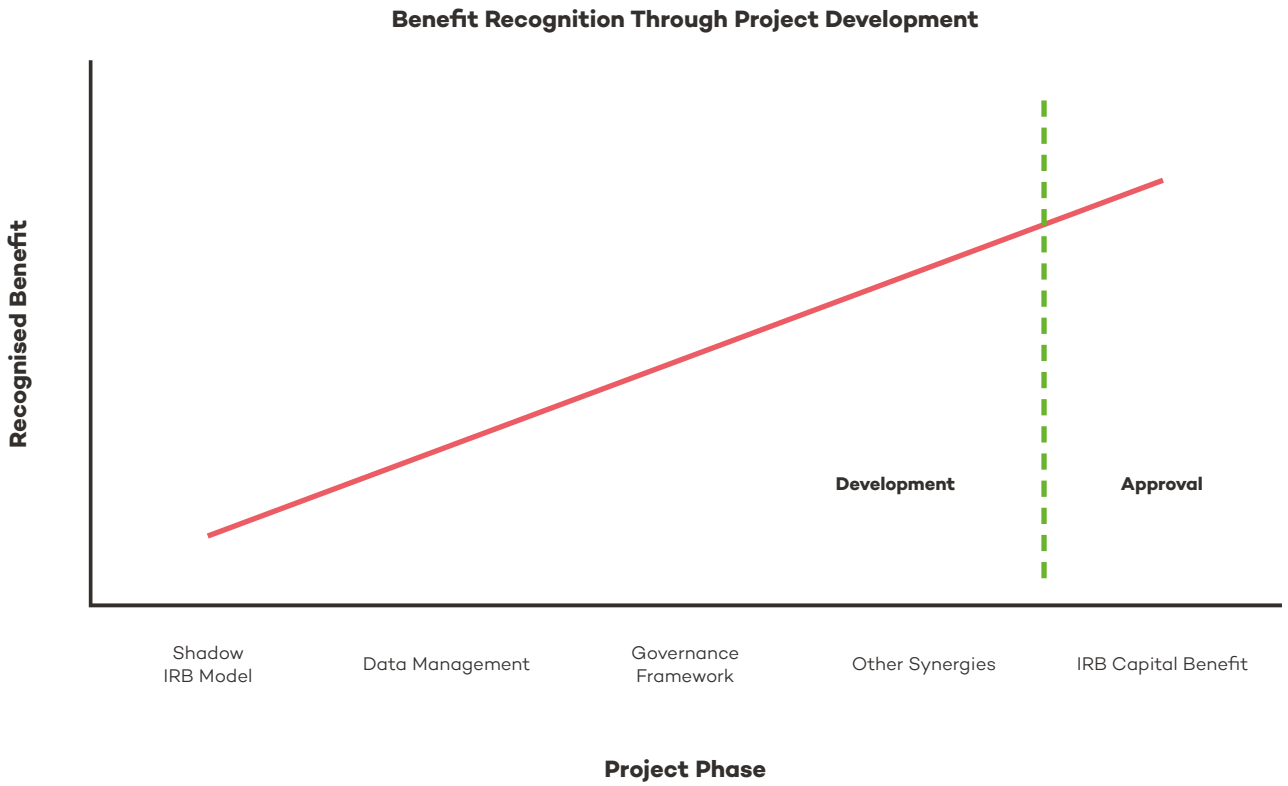
1. That its complete IRB governance framework (i.e. governance forums, internal approval and review process) to have been through at least one annual cycle since internal approval.
2. That it has used internal ratings system (e.g. provisioning, scorecards) in credit decisions, lending policies, risk appetite polices and monitoring for three years
3. That the IRB framework (i.e. data, systems and models) has been monitored, validated and audited for at least three years; recognising that this is likely included the development and refinement period.

The clarifications and shortening of the experience tests mean a successful IRB waiver can be achieved in under three years of a development starting.

In the meantime, it should be remembered that the other benefits of an IRB development discussed in the previous section will begin to materialise as the project gathers pace.

While the time to IRB approval is now shorter than ever before, it should also be remembered that changes to capital calculations introduced under Basel III will begin to take effect from 2022.

So with a 3-year project timeline estimated, 2018 is the right time to be considering IRB.



Section Seven

In conclusion

The benefits are huge, both financially and through a wider impact on the firm. An IRB project can increase expertise within a firm, create cost savings through data, model and system synergies and create the basis for a more robust and secure future through increased governance.

Conversely the constraints are considerable and should not be underestimated; however, this paper has identified why these are not insurmountable.

Recent changes to regulation and the impact of IFRS 9 on firms current modelling framework mean these constraints are now reduced to the lowest they've ever been, making the cost of an IRB development lower than ever.

The changes to the capital framework announced in December 2017 under Basel III have meant that now is the right time to reassess whether IRB is the right approach for all firms.

These reforms will come into force in 2022, which may seem long way away but given the time required to develop an IRB framework and the length of the approval process, leaving it too late could prove very costly.

For small and medium firms, being competitive in the market place is key to not just growing market share but also crucial to a firm's evolution.

Given the changes to capital requirements, standing still and allowing competitors to get the upper hand by pro-actively addressing the right capital approach could be a serious blow.

On the flip side, effective risk management can become a competitive advantage, firms can venture in to areas of the market that had previously been out of reach due to high capital costs and can ensure they can offer a better deal to customers than their competitors.

A successful IRB programme requires modelling, data and regulatory expertise, which can make this a daunting prospect to embark upon. However, acknowledging this from the outset and ensuring this expertise is factored in from the start will mean the costs are kept at a minimum, the benefits maximised, and the aim is achieved.

At Jaywing, our blend of experienced risk modellers, data experts and our designated capital and regulatory function mean we are equipped with the expertise to support all aspects of an IRB programme.

Section Eight

About the author

Ben is a regulatory risk modelling expert with over 8 years experience at a Lloyds Banking Group. Ben joined Jaywing as a lead consultant in 2018 focusing initially on the substantial changes and new regulation taking place in IRB modelling at this time.

Ben built up his expertise through designing, developing and building IRB and IFRS 9 models at Lloyds Banking Group over the past eight years. In particular, Ben led the development of retail IFRS 9 models at Lloyds, developing a talent in not just model building but also the interpretation of regulation and applying this in a business context.

As well as developing IRB and IFRS 9 models, Ben has a strong background in providing guidance, analysis and review in all aspects of the capital and impairment framework. Additionally, Ben has a developed this from a background in operational strategy and model development.

Ben has a Masters degree in Development Economics and a Bachelors degree in Economics, both from the University of Sheffield.

About Jaywing

Jaywing's team of risk and data science specialists is now more than 70 strong and we have almost 20 years' experience helping many of the UK's lenders with data and analytics projects in risk and marketing.

Through our industry-leading expertise and trusted partnership approach, Jaywing has held many long-standing (10 years+), large-scale relationships with some of the UK's leading financial services organisations.

We have a wealth of experience in the financial services sector, working within both consumer and commercial portfolios, and our team of experts have developed industry leading ways of using data, analytics and systems to help our clients to manage credit and fraud risk to meet the ever-increasing regulatory demands.

Our expertise encompasses: banking regulation such as IFRS 9, Stress Testing, Capital Management and IRB; and risk strategy including operational decisions, pricing and collections optimisation.

We have recently added Artificial Intelligence to our skillsets and have a suite of machine learning and AI products to add to our existing risk product suite.

We have supported over 25 lenders in the UK with risk projects including Lloyds Banking Group, Royal Bank of Scotland, Nationwide, Secure Trust Bank, Shawbrook Bank, Paragon Bank and Coventry, Skipton, West Bromwich, Newcastle and Nottingham Building Societies.

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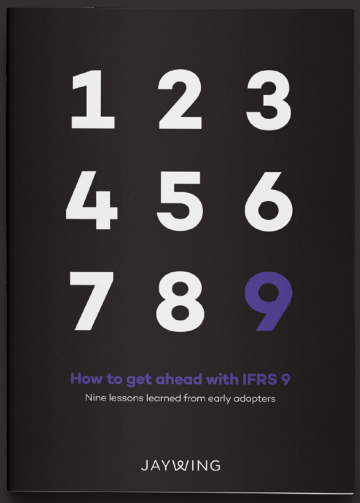

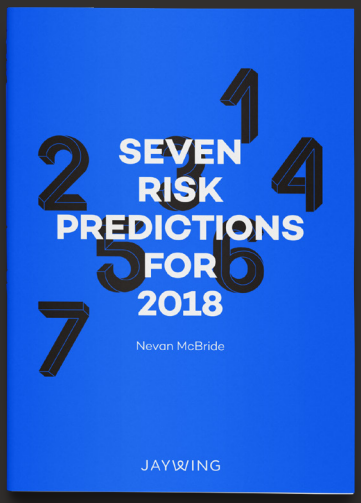

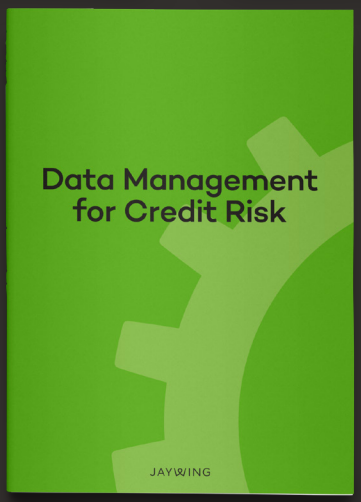

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