BNP Paribas' response to the Discussion Paper 258
The regulatory framework: balancing risk-sensitivity, simplicity and comparability

General comments

BNP Paribas welcomes the opportunity to participate in the debate on the regulatory framework by making comments on the Discussion Paper issued by the Basel Committee on Banking Supervision entitled "The regulatory framework: balancing risk sensitivity, simplicity and comparability".

BNP Paribas' response to the consultation questions is driven by some fundamental principles:

- Completing the implementation of Basel III is the most important step that needs to be taken. Changing the regulatory framework at this stage would send the wrong message to the policy makers and the G20 who were at the source of this program. It would also be hard to understand for the banks, which invested and still invest a lot of resources and energy to implement the new regulations. It would feed again the mistrust of the public opinion regarding the robustness of the banks and the banking regulation. The analysts, the investors, the media and the public opinion all want to see a stable regulatory framework.
- With Basel III, two new metrics were added by the regulator on top of the risk-based capital ratio : a liquidity ratio and a leverage ratio, with each a specific objective. BNP Paribas believes that while indeed the 3 metrics are complementary the risk-based capital regime should remain at the core of the regulatory framework. We also think each metric should be kept as simple as possible, preserving its own rationale and avoiding unnecessary complexity (as would be the case when mixing metrics or adding caps and floors).
- The supervisor has a key role to play. Regulation cannot be dissociated from supervisory practice. Regarding the comparability between banks and the complexity of the framework, divergences in supervisory practices appeared to be a key explanation factor. In this respect the Single Supervisory Mechanism, the first pillar of the Banking Union, is expected to significantly converge supervisory practices in Europe.
- Some variability in the outputs of the risk-based model is to be expected. The difference in risk-weighted assets (RWA) between banks should not lead to the simplistic conclusion that internal models and reported RWA lack integrity. The drivers of differences can be explained, and have actually already been explained thanks to the different RWA benchmarking exercises led by the BCBS and the EBA, and thanks to the CFO network initiative. Different business practices will lead to variations in RWA that are relevant and, as such, do not need to be eliminated.

When the financial crisis emerged, the Basel II regulation and its internal risk models for regulatory capital calculation were just about to launch. The effects of the crisis have cast a shadow over the merits of the current regimes but the truth is that Basel II provided valuable information and tools throughout the financial crisis that otherwise would not have been available.

The Basel III regulation has considerably added to the framework by introducing, in addition to the capital adequacy framework, new metrics in the form of liquidity measures and a leverage ratio in the pillar 2. The pillar 3 is substantially reinforced. The resolution and recovery plans are under development. In parallel, the Banking Union is expected to improve supervisory practices in Europe. It should be an important step to ensure a uniform level of implementation of the Basel requirements within the banking industry.

Two to three years from now, all the initiatives taken in the aftermath of the crisis will be in place. Only then will we be in a position to assess the consequences of their implementation. In the meantime, an overhaul is not justified and the proposals based on simplistic ratios, as presented in the Discussion Paper, are not options for progress. They could actually turn out to be counterproductive in the end. The supervisors and regulators have a key role to play in stabilizing the regulatory framework first, in order to restore confidence in the medium term.

We provide below responses to the specific questions in the Discussion Paper.

Q1. Does the current framework, with its reliance on the risk-based capital at its core, appropriately balance the objectives set out in paragraph 29?

The entire current regulatory framework fulfils all these objectives.

We firstly assess the degree of success of the current framework in meeting every objective.

Objective 1: Produce a sound minimum standard of capital adequacy for internationally active banks, but also be capable of application to smaller institutions.

BNP Paribas considers this objective achieved. The Basel II framework with the « Standardised approach », the « Foundation approach », and the « Internal Risk Based Approach » has allowed the use of a unique framework by credit institutions of different sizes, different business models and geographical presence. Its Pillar 1 approach provides for sound minimum standards adapted to the scale and complexity of each institution and is complemented by a Pillar 2 framework that allows to go beyond the minimum requirements as appropriate.

Objective 2: Deliver a well-understood measure of capital adequacy that is comparable across banks and over time.

BNP Paribas considers this objective achieved regarding comparability over time and underachieved regarding comparability between banks.

- Comparability over time: More than after 5 years running under Basel II, comparisons can be fairly made as seen in the back-testing exercise results. To preserve this comparability over time, stability of the framework is essential. The current framework provides comparable data over time so long as it is stable.

- Comparability between banks: First of all, assessing comparability across banks requires developing tools and analysis that are not straightforward. In this respect, the BCBS RWA consistency review started in 2012 for both trading and banking book was the first initiative ever launched with that objective. While the outcome of the study highlighted a relatively high level of dispersion in banks RWAs, the analysis showed that a reasonable portion of this disparity is explained by valid reasons directly tied up to the banks business mix and risk profile. The other portion results from a mix of supervisory discretions, banks modeling assumptions and possible data errors. Second, it is important to recognize the limitations of any point in time analysis that cannot reflect the efforts undertaken jointly by banks and supervisors to improve the modeling assumptions and risk parameters. The BCBS should be very cautious not to draw premature conclusions or undertake hard line policy actions on the basis of a one off analysis. Making sure that the capital adequacy framework is well understood will mainly require this framework to be stable over time. The effect of experience could then play a key role. This objective is at the heart of this Discussion Paper and we will have more to say on this below.

Objective 3: Support a reasonable level playing field between banks.

BNP Paribas considers that indeed the level playing field could be improved. The different RWA benchmarking exercises led by the BCBS and the EBA have identified three major sources of a potentially uneven playing field in the current global framework.

- Divergence in supervisory practices;
- Inconsistent degree of Basel framework implementation within institutions;
- Underlying accounting standards.

The challenge is to leverage on the benchmarking exercises to correct the sources of dispersion that seem questionable without jeopardizing the risk sensitivity of the framework or inducing herd behavior.

The alternative, imposing a standard approach for the whole banking industry, would not improve the level playing field as the diversity and the specificities of each business model and of the market would not be correctly reflected. The detrimental consequences of such an approach are further explained in the answers on question 3.

Objective 4: Take into account the effects of capital requirements on banks' risk-taking incentives, e.g. when faced with regulatory constraints on their capital (and therefore the size of their balance sheet), to seek higher-risk assets as a means of boosting expected returns.

The current framework with its advanced approach, based on risk-sensitive models, meets this objective. Indeed aligning capital requirements with risk is aimed at avoiding distortions in risk-taking incentives. It also allows to fully integrate the risk based capital framework into the credit decision and risk management processes.

It should be noted that the leverage ratio is unable to achieve those objectives

Objective 5: Promote improved risk measurement and management within banks.

The risk-based capital regime has created or strengthened the tangible incentives for robust risk measurement and has in fact resulted in banks making significant progress in the measurement of credit, market and operational risk. Risk management improvements have also been underscored through application of the "use test" principle. A rating system solely devised for calculating regulatory capital would not be efficient.

Adopting the Basel III reforms (higher and better quality capital, improved risk coverage, capital buffers, and liquidity and funding requirements) is an important step in improving the consistency of risk measurement and management within banks. The governance aspect has also been reinforced.

While it is with the banks' remit to regularly update their rating systems over time to ensure they remain reliable and compliant, banks can face a significant delay in implementation of updated models when prior supervisory approval is needed. This phenomenon can introduce a significant bias when comparing results between banks

Q2. Are there other objectives that should be considered in reviewing the international capital adequacy framework?

BNP Paribas appreciates the opportunity to propose other objectives that should be taken into account in reviewing the international capital adequacy framework. We suggest the Committee should consider the following objectives:

Objective 6: The stability of the regulatory framework must be ensured.

The stability of the regulatory framework is absolutely crucial.

Investors and financial analysts for example perceive constant regulatory changes as a risk because they create uncertainty. Today, some investors and analysts track the potential changes in regulation rather than assessing fundamental economic prospects and real economic risks. This is highly detrimental to the sector and the financing of the economy.

A stable regulatory framework is needed to restore credibility in the system and allow comparability over time.

Objective 7: The capital requirements must be based on risk-based models that must be embedded in internal day-to-day risk management.

Performing the use test must be explicitly considered as an objective that should be taken into account in reviewing the international capital adequacy framework.

Objective 8: The regulatory framework does not hinder the financing of the "real economy".

In the current economic environment, credit supply is a fundamental factor for recovery and growth. The cost and benefit of new regulations on different asset classes (e.g. export credit, SME lending) should be assessed before any amendment to the existing regulation.

Objective 9: Relevant education of various stakeholders should be organised as understanding the regulatory framework is vital

Faced with the complexity of the current regulatory framework, two ways are possible:

- Completely changing the framework in order to simplify it;
- Keeping it, but providing efforts to make it more understandable.

BNP Paribas believes that the second option is to be prefered for the following reasons:

- Stability of the regulatory framework is crucial.
- Understanding the regulatory framework is also vital, but communication should be tailored to fit for each audience. No one is able to understand each single detail of every single industry. Luckily, you don't need to know how to pilot a plane to feel comfortable to go an a flight. Likewise for the banking industry, it is important to explain to every stakeholder what is relevant for him avoiding to end up lost in the mire concluding that the banking sector is too complex. Various layers of understanding the goals should be defined. For instance: supervisors have to analyse detailed information, analysts need to build a well-informed opinion on an institution (e.g. equity firms and ratings agencies), while the public opinion demands general information explained in simple words.
- The banking sector uses quite sophisticated methodologies and technologies, though not more than other sectors. Moreover, the complexity of the banking industry reflects the evolution of the economy and society in general. Discouraging the further improvement or use of sophisticated risk management tools would not lead to a simpler world, but on the contrary would make it more difficult and complex to master it adequately.
- The regular and in-depth controls performed by the supervisor and their role in the approval process of internal models should be underpinned. Supervisors have an important role to play in explaining the regulatory framework and restoring credibility in their outcome.

The alternative, a complete redrafting of the regulation, starting from a white sheet, would only fuel the lack of confidence. Breaking with the past would also conflict with the need of comparability of figures over time and the need for back-testing.

Objective 10: The regulatory framework should be consistently applied to funds, credit institutions and insurance companies

Breaking the silos which start to appear between the regulation applied to credit institutions, funds and insurance companies is a necessity to avoid further development of the shadow banking activities and the risk of regulatory arbitrage.

Q3. To what extent does the current capital framework strike the right balance between simplicity, comparability and risk sensitivity, given the costs and benefits that greater risk sensitivity brings?

The objective of the Basel III Accord was to provide a more effective framework, based on three complementary metrics (risk based capital ratio, liquidity ratio and leverage ratio). We believe those three metrics should each keep their respective nature and purpose. We think the current capital framework indeed strikes the right balance between simplicity, comparability and risk sensitivity. However, it is important for the framework to be consistently implemented around the world.

The Discussion Paper considers risk-sensitive models compared to standardised approaches stressing the difficulty of comparing between outputs from internal models.

In this respect, we believe the following 4 elements should be considered :

1. Risk-sensitive approaches have intrinsic assets
Based on experience, risk-sensitive approaches have delivered substantial benefits. Risk-sensitive approaches allow:

- To adjust minimum required capital to the risk profiles of the banks;
- To disclose the risk appetite and risk profile of the banks;
- To ensure that regulatory metrics align with the economics of the bank's transactions;
- To significantly improve risk management, to provide extensive useful databases, and to support internal control in place;
- To rely as little as possible to credit rating agencies which is in line with the Basel expectation.

2. The standard approach is not a tool solving every issue
Notwithstanding the fact that the method is conceptually simple (exposure x weight) its implementation for multi-activity banks is complex. The appearance of comparability is a delusion, mainly because of the complex treatment of the collateral and the difficulty of the implementation.

The standard approach weightings have never been revised or back-tested since the beginning of the financial crisis. As a consequence, some of them overestimate the actual risk while others underestimate it.

It would be dangerous for the financial stability of the whole financial system if banks would be obliged to use the standardised approach as their main risk management tool. A standardised approach would encourage all banks to behave in the same way and would give incentives to take more risk, both elements increasing the systemic risk. Model diversity is a desirable phenomenon from a prudential point of view, because it generates less correlation.

3. Leverage ratio is not as simple as it looks
The leverage ratio measures a bank's capital against an accounting definition of its assets.
From a risk management perspective it is dangerous as it says nothing about the quality of the assets, meaning that a dollar of very low risk assets backed by collateral is treated exactly the same as a dollar lent to a risky borrower on an unsecured basis[1].

The leverage ratio as the standard approach gives the appearance of comparability, but this too is illusory.

The leverage ratio has been concieved as a supplemental, backstop-measure to the risk-based measure. The two measures are intended to complement each other: the risk-based requirements are intended to be the "binding" requirements for most institutions in order to effectively correlate their capital levels with the actual risks they take, while the leverage ratio is intended to be a supplemental or backstop requirement. By correlating capital to risk, the risk-based requirements avoid creating a perverse incentive to prefer more risky assets to less risky ones, or to penalise institutions for holding highly liquid, low-risk assets such as cash or certain highly rated government securities. At the same time, the supplemental leverage ratio ensures that an appropriate minimum level of capital is held at all times as a backstop in the event that the risk-based measure fails to capture certain risks appropriately.

Unfortunately the impact analysis of the revised leverage ratio published recently by the BCBS, shows that the (new) leverage ratio - if left unchanged - could become the main driver of capital requirement which is completely at odds with the initial objective and would have important (unintended) effects.

[1] Peter Sands, "In banking, too much simplicity can be dangerous" Financial Times, August 26, 2013.

4. RWA between banks can differ for good reasons

RWA between banks can differ but the underlying reasons should be well investigated and explained. To help explain why, the 23 banks of the European CFO network have undertaken a joint initiative to identify the drivers of model and RWA differences. The detailed paper outlines the reasons why the RWA variance occurs. (Please refer to the Appendix)

The first category of differences comes from external factors. These factors arise from the environment in which banks operate and which may be largely beyond their control, including:

- Geographical area of application, e.g. Basel rules which are not uniformly applied across countries.
- Prudential supervisory frameworks linked to national discretions or practices, e.g. super equivalent add-ons required by national regulators (such as the imposition of parameter floors) and the diversity of supervisors' approaches to model approval.
- Legal system of particular jurisdictions, e.g. bankruptcy procedures and the ability to realise collateral.

The second category of differences concerns internal factors. These relate to a bank's business model and approach to risk management. They include the following:

- Model inputs, data and methodologies, e.g. banks have unique internal processes and recovery information, drawn from their own client relationships and loss and recovery history which will result in LGD models that reflect this divergence. In addition, banks use a mix of approaches in market risk model development which can result in divergent RWAs.
- Client, product and market mixes, e.g. for a residential mortgage loan, wealthy clients will generally exhibit lower debt-to-income ratios, which translate into lower RWAs. Within market rules, credit-trading activities attract higher risk weights than other trading activities.
- Conservative add-ons, e.g. to ensure that the risk, and hence capital requirements, are not underestimated by the various types of models a suitable level of conservatism is introduced.
- Banks also have specific intimate knowledge of their customers: the rating of a given borrower may not be the same in two different banks because of the different relationship they conduct.

It should be noted that the IMF Working Paper *Revisiting Risk-Weighted Assets* (March 2012) shares the same analysis.

To conclude, the answer to Question 3 is that the standard approach and the leverage ratio narrow the difference in regulatory approach between risky and safe assets creating perverse and powerful incentives for banks to run a higher risk portfolio.

Q4. Which of the potential ideas outlined in Section 5 offer the greatest potential benefit in terms of improving the balance between the simplicity, comparability and risk sensitivity of the capital adequacy framework?

First of all, we would like to reiterate that the current framework is conceptually sound.

We think the ideas that would contribute most to improving the balance of objectives are the following:

1. Limiting national discretion and improving supervisory consistency
2. Improving the accessibility of Basel Committee documents

Other suggested ideas that could be taken into account subject to further investigation and certain conditions:

3. Enhancing disclosure
4. Recognizing simplicity as an objective (without removing risk sensitivity)
5. Introducing the leverage ratio as a back-stop measure
6. Using additional metrics (as a benchmark)

The ideas that would not improve the regulatory framework are, in our view, the following:

7. Reconsidering the linkage between internal and regulatory models
8. Utilizing added floors and benchmarks to mitigate the consequences of complexity
9. Addressing factors driving complexity in a more fundamental manner

Please find below, our remarks for each potential idea.

1. Limiting national discretion and improving supervisory consistency

Reducing the amount of national discretion including the use of floors applied to model parameters and taking steps to reduce such differences will improve comparability and ensure a more level playing field. However, consistency does not mean uniformity as specific conditions or situations can require a specific rule or decision.

We fully support building the Banking Union in Europe. The Regulation voted on 12/09/2013 confers key supervisory tasks and powers on the European Central Bank (ECB) over all the credit institutions established within the euro area. The ECB carries out its tasks within a Single Supervisory Mechanism (SSM) composed of the ECB and national competent authorities. The ECB will be required to ensure the coherent and consistent application of the Single rulebook in the euro area. To follow this objective, a dialogue will be necessary between the ECB and the other supervisors.

2. Improving the accessibility of Basel Committee documents

We welcome the fact that the Basel Committee has initiated a process to consolidate all the Basel standards into a single, accessible, structured set of documents.

3. Enhancing disclosure

The recommendations recently made by the Stability Board's Enhanced Disclosure Task Force ("EDTF") will improve understanding of model inputs and outputs.

Enhancing disclosure about the internal model must be well structured with precisely defined targets. Regarding the RWA, we favour the publication of back-testing results, e.g. model performance. A common educative template should be shared between banks.

We support higher quality disclosures. However, we caution against requiring disclosure that will not facilitate meaningful comparison between firms. For example, disclosure of the results of standardised calculations, as suggested in the Discussion Paper, will only serve to highlight that standardised models are less finely calibrated and, therefore yield different outcomes, rather than impart information about the quality of a firm's internal model.

4. Explicitly recognizing simplicity as an additional objective

Simplicity is a desirable feature of any system but it could not be an objective *per se*.

The Discussion Paper is focused on the complexity of internal models. Therefore it is important to have a well-informed and constructive debate as a reminder that the 2008 crisis was not a model crisis. One of the most important lessons of the crisis is that it is crucial to measure, manage and monitor risks in the financial system. By reflecting the irreversible complexity of today's world, the models themselves have become complex.

It should be noted that *The fundamental review of the trading book* published in May 2012 does not follow this objective at all. An illustration of this fact is the introduction of very complex features such as the use of differentiated liquidity horizons by risk factors.

5. Introducing the leverage ratio as a back-stop measure

The leverage ratio has been introduced under Basel III to act as a backstop to the risk-based ratio. This should remain the case.

The fundamental concern with the ideas reviewed in the Discussion Paper is that they would expand the role of the leverage ratio at the expense of the risk-based measure. For multiple reasons discussed above, the industry is convinced that a "simple" leverage ratio as the principal regulatory capital instrument would only mask the real complexity of the modern business of banking, in ways likely to lead to new risks and this might ultimately make the economy more crisis prone.

6. Using additional metrics

We support the need to avoid over-dependence on individual metrics, such as indicators of bank resilience.

The additional measures should achieve the common objective of integrity and transparency in the calculation by internal model of Risk Weighted Assets.

Our comment is that the metrics linked to the market will be volatile metrics and consequently not relevant.

Market participants can easily create many of the proposed metrics with publicly available data.

7. Reconsidering the linkage between internal and regulatory models

The standard method, which is not a risk-sensitive approach, can only be used for the purpose of regulatory capital calculation, and not for risk management purpose. If the standard approach becomes mandatory, it will be a violation of the "use test" principle.
We believe that there is benefit in aligning regulatory measures of risk and banks' internal measures.

8. Utilizing added floors and benchmarks to mitigate the consequences of complexity

Retaining the risk sensitivity of the capital framework is not only important for ensuring that capital is commensurate with risk, in individual banks as well as the system as a whole, but also to maintain incentives for banks to continue to improve their risk measurement and management system.

We believe that any steps toward implementing additional floors and benchmarking could not fulfil this goal, and would not lead to additional simplicity or comparability. Moreover, adding new floors will not improve comparability.

9. Addressing factors driving complexity in a more fundamental manner: (tangible leverage; leverage ratio and a standardised approach; pre-commitment approaches)

The alternatives such as the leverage ratio and the standardised approach are not realistic and could be dangerous.
The standard approach gives the appearance of comparability but this is delusion as:

- The treatment of collaterals is complex.
- The transposition of the Basel text into regulation (CRR) is sometimes difficult to interpret, e.g. the articles of the CRR dedicated to the risk weights assignment. Some notions are left with interpretation, e.g. the notion of "equivalent supervision" is not defined.
- Lots of specific cases are mentioned which bring complexity to the implementation.

The leverage ratio as the standard approach gives the appearance of comparability, but this too is also illusory mainly because:

- The leverage ratio is not model free.
- Accounting standards differ by jurisdictions.

The leverage ratio can only be one element within a regulatory framework. The solvency ratio and leverage ratio have different objectives. One cannot replace the other. The risk-based capital regime should remain at the core of the regulatory framework.

Even Andrew Haldane at the Bank of England, in his *Dog and the Frisbee* paper, doesn't call for a leverage ratio on its own.

We consider this thinking highly premature. The implementation of Basel III is at an early stage. In addition, many other significant areas of financial reform are only beginning to take hold, including resolution and recovery regimes.

Q5. Are there other ideas and approaches that the Committee should consider?

BNP Paribas thinks that the Committee should consider other ideas:

- There are some specific areas where revisions or interpretations of the Basel framework would be helpful to reduce variations in practice.
- The Committee should also take into consideration the internal rules and procedures defined and controlled through an overall risk governance system within banks.

Conclusion

Not only should model-based approaches be formally retained, but there should also continue to be capital incentives to use these approaches. The internal usability of models should not be compromised. We urge the Committee to ensure full and true implementation of Basel III and other parts of the prudential framework instead of questioning it.

Appendix: European CFO Network - Integrity of RWA

Preface

Markets and regulators currently focus considerable attention on analysing and comparing banks' capital usage in relation to risks, in order to understand their capital adequacy and risk management. The usual approach to this, others being generally too complex for external parties to undertake, is to examine published ratios of Risk-Weighted Assets (RWA) to capital, with related underlying data.

However, this approach also has its limitations, arising from reasons linked either to the numerator of capital ratios (e.g. Core Tier 1, or total capital) or their denominator (RWA). Whilst in the period preceding and during the financial crisis from 2007 to date the former was the component primarily in focus, attention has more recently manifestly shifted to RWA.

Most European banks now use IRB models to calculate the majority of their RWA, and as these RWA outputs appear to vary considerably from one bank to the next, even for similar portfolios of assets, both the models and the RWA are perceived as highly subjective and questionable, and as presenting

considerable challenges to the comparison of capital ratios across banks, both cross-border and within country.

Concerns over the transparency and integrity of banks' RWA calculation and reporting have raised doubts over the adequacy of IRB modelling as an essential pillar of risk management, and to suggestions in some quarters that the prudential framework established in the Basel Accord be dismantled, reverting to more simple, standardised, non risk-based approaches. It has proved difficult for banks to dispel these concerns over RWA and their associated models, as:

- Not all the drivers of variability in RWA are within banks' ability to control or influence;
- Advanced approaches are complex in design and cannot be implemented in a simple manner;
- A larger bank typically manages diverse business lines operating many different models;
- Disclosures struggle to be simultaneously comprehensive and succinct, and
- Basel rules, rightly, allow some information to be withheld on grounds of confidentiality.

There are in fact many justifiable reasons why RWA reported by two banks for portfolios within the same asset class, or even for the same clients, may diverge - indeed, it is essential that they should do so, if RWA are to reflect the differing risks faced by each bank. By reflecting the unique risk profile of each bank, IRB-modelled RWA avoid the danger of prescriptive external requirements creating and reinforcing herd behaviour. Improvements in Pillar 3 disclosures to link RWA differences to the underlying diverse risks will make bank comparisons more transparent and accessible to the market.

It is therefore important that there should be a well-informed and constructive debate on means to achieve the common objective of integrity and transparency in the calculation of RWA. The European Banking Authority's interim report on the consistency of risk-weighted assets in the banking book is welcomed. To approach these issues, for both the credit and market risk types, and under a global perspective, we classify here the drivers of RWA into two broad categories:

i) External factors: relating to the environment in which banks operate and are largely beyond their control. These comprise differences between jurisdictions, often cited as 'level playing-field' issues, in legislation on the financial sector, financial accounting regimes and supervisory practices.
ii) Internal factors: relating to a bank's business model and approach to risk management, including notably the nature of internal models, and generally specific to individual institutions.

We aim to identify the more material factors in each category, indicate whether they are justifiable or not, and in the latter case suggest actions which should be taken to address the matter. Such actions would fall not only to banks but also to the official sector.

Contents:

A) CREDIT RISK - EXTERNAL FACTORS

The differing prudential frameworks of the countries within which banks operate, which regulate the field of Basel modelling, together with the varied national legal frameworks, which impact recovery and other key processes, play an important role in RWA determination.

1. Prudential supervisory framework: main national regulatory discretions

a) Geographical area of application - impact of diverse Basel regimes

Basel rules are not uniformly applied across countries. Some regions, including the USA, have not yet implemented Basel 2, while others already apply Basel 2.5 or even Basel 3 rules.

Banks operating under different regulatory regimes will not only calculate their RWA differently, but will also manage their lending in order to use capital efficiently under the Basel regime within which they are operating. This will lead to a portfolio mix which would be sub-optimal for a similar bank operating under another regime, and makes it extremely difficult to compare meaningfully the RWA of the two banks.

b) Divergent guidance on the modelling process

National regulators define differently the interpretation given to important model inputs including default definition, model philosophy (TTC or PIT), downturn LGD and others. Models built to different regulatory requirements will inevitably produce divergent RWA calculations.

i) Model philosophy: PD across the economic cycle (TTC or PIT)

Supervisors recommend that PDs be estimated based on 'Through The Cycle' (TTC) data, but the definition of what should be considered an economic cycle diverges between regulators. Supervisory guidelines differ, with some requesting the capture of two downturns in the historical data sets while others are satisfied with data from one full cycle. Additionally, there are varying approaches as to what is deemed to be a compliant 'through-the-cycle' PD model, with some modelled results showing greater variation through the cycle than others. Some portfolios are managed on a more 'Point in Time' (PIT) basis, requiring the PIT model to be related to, and explained with reference to, the TTC model. Regulatory guidance on how to achieve this, and when it may be considered to be satisfactory, is not consistent.

ii) Model methodology: specification of Downturn LGD procedures

Basel modelling is required to use 'Downturn LGD'. Specification of downturn LGD procedures diverge across countries and banks. In some cases, supervisors recommend that LGD be estimated under downturn scenarios without specifying exactly what the definition of the 'downturn' is. Other regulators have strict requirements on how to identify downturn conditions and on how to calculate a downturn LGD.

iii) Model input – Definition of default

The guiding principles for the definition of default are specified within the Basel regulatory framework. However, these principles leave ample scope for interpretation and may diverge due to differences between regions and national regulators, as well as between the internal policies, practices and business models of banks. The default definition has two parts: the conditions for entering into default, and those for exiting the situation. Regulatory guidance may apply to either part.

1) Conditions for entering into default: Regulatory guidance

For entrance into default, it is necessary to determine the number of past due days and the materiality threshold. Regulations allow the use of various definitions. For example, in some regions and for specific kinds of counterparties 180 days past due is used, as opposed to the 90 days past due prescribed by Basel regulation. Additionally, banks are permitted to use shorter periods (for example, one bank uses 14 days as a default definition).

Another difference is the threshold that is used for 'technical defaults'. Defaults of small exposures are considered to bias the modelling framework, and may be removed from the observations. The level of this threshold differs across the industry, as the determination of materiality will vary between banks.

Differences between default definitions that exist across countries include unlikeness to pay. Banks are required to classify a customer as in default if the bank assesses that a loss is likely to occur, even if this customer is current in payments. Internal systems and processes will influence this assessment, including the approach to cross-defaults, which are bank-specific, as well as the different external data sources used by banks to assess defaults.

2) Conditions for exiting default: Regulatory guidance

Institutions are required to define the conditions under which a facility is considered to be cured. Again, practices differ across regulator, region, and institution. The length of the cure period, as well as the treatment of re-defaults, is important. For example, in some countries a one-year quarantine period is applied after payments have been restored to normal. During this period the customer may remain in default, or receive a punitive rating.

The aim of this requirement is to ensure that cured facilities behave similarly to facilities that have never been in default. Additionally, if an institution is unable adequately to justify an in-house definition, the regulators may set a fixed cure period for that bank only. Therefore, banks based in the same jurisdictions may have different cure period definitions.

Linked with the cure period is the treatment of defaults repeated over time on the same facility. As a general rule those repeated defaults must be recognised as a single default when the facility has not been cured at any time between defaults. By contrast, the failure to make payments on a cured facility may be considered as an additional default. Once again, different regulators give divergent guidance on this point.

3) How do different default definitions affect risk weights?

Different default definitions impact the calibration of risk parameters. All parameters are estimated on the basis of default data. The calibration of the parameters will differ when the data set is built with different default definitions. Banks with a more tolerant default definition will have lower observed defaults, and therefore lower PD levels. Subsequently they may expect to have lower cure rates, and as a result higher LGDs.

The table below provides an example of how the use of different default definitions can lead to differing risk weights. This is for illustrative purposes only and may differ depending on jurisdiction and actual situation.

Bank A and bank B have granted loans with 5 year maturity to corporates with comparable risk characteristics. Bank A has a more tolerant default definition than bank B. As a result bank A has a lower number of clients in default, and thus lower PD's assigned to its clients, and has higher LGD's. For bank B the opposite holds: more defaults, higher PD's and lower LGD.

Please note that the expected losses for both banks are the same. However, the RWA for bank A with the more tolerant definition is much higher.

This translates into a lower Core Tier 1 ratio for bank A, after taking into account the profits during the book year, additions to loan loss provisions, and the shortfall that is deducted from capital.

Bank A

Rating	# Clients	PD	EAD (mln)	DLGD	LGD	EL_{BE} (mln)	RECAP (mln)	REL (mln)	Shortfall (mln)
A+	990	1.0%	990	25%	20%	2.00	58.02	2.50	0.50
D	10	100.0%	10	25%	20%	2.00	0.50	2.50	0.00
Total						**4.00**	**58.52**	**5.00**	**0.50**

Capital	100.00
Profit	10.00
prov	4.00
shortfall	0.25
Core-Tier 1	**105.75**
RWA	731.50
CT1 ratio	**14.46%**

Bank B

Rating	# Clients	PD	EAD (mln)	DLGD	LGD	EL_{BE} (mln)	RECAP (mln)	REL (mln)	Shortfall (mln)
A+	988	1.2%	988	21.7%	16.7%	2.00	52.74	2.60	0.60
D	12	100.0%	12	21.7%	16.7%	2.00	0.60	2.60	0.00
Total						**4.00**	**53.34**	**5.20**	**0.60**

Capital	100.00
Profit	10.00
prov	4.00
shortfall	0.30
Core-Tier 1	**105.70**
RWA	666.73
CT1 ratio	**15.85%**

4) Should differences in regulatory definition of default be eliminated?

Yes, to a large extent. Alignment of default definitions in terms of number of days, unlikeliness to pay, materiality thresholds, cure- and quarantine periods will remove unhelpful differences.

These differences will be partly addressed through the implementation of CRD IV, at least for banks functioning entirely within the European Union.

However, as regulations can never capture all details, some variation in the internal quality and philosophy of default data will remain, and this is a valid external model influencing factor.

iv) Risk rating systems - specification of expected losses

The RWAs of banks support unexpected losses. For defaulted loans, however, the legislation for RWA calculations remains diverse. In general, the required RWA for a default situation are calculated as follows: Max {0; 12.5 * (LGD- EL_{BE})}. Here, EL_{BE} is the institution's best estimate of expected loss for the defaulted exposure, and LGD is the regulatory LGD.

Differences between overall RWA levels may occur due to differences in the way the LGD and the EL_{BE} are calculated. Currently banks do not calculate LGD and EL_{BE} for defaulted exposures in a uniform way. Best estimate of Expected Loss (EL_{BE}) and LGD for defaulted exposures are computed in different ways depending on jurisdiction. The following three methods are currently in place to calculate the capital requirements for defaulted exposures:

- some banks do not need explicitly to hold RWA, as LGD is equal or lower than the EL_{BE}. In some countries banks need to add the shortfall between the regulatory expected loss and EL_{BE} to the expected loss shortfall.
- other banks may need to hold RWA for defaulted exposures, and EL_{BE} is computed as an independent parameter.
- other banks may need to hold RWA for defaulted exposures, and the EL_{BE} is derived from provisions. No expected loss shortfall needs to be held by banks in this situation.

Disclosures in Pillar 3 reports are also not uniform. If defaulted exposures are not clearly reported, comparisons of RWA at the portfolio level may be difficult to interpret. The issue can be mitigated by aligning the computation of the parameters LGD and EL_{BE} and fostering transparency through the use of Pillar 3 reports. As above, these differences will be partly addressed through the implementation of CRD IV.

c) Divergent Supervisory Practices

Differences in supervisory practices across jurisdictions play a role in those RWA divergences. Apart from the very specific guidance on model inputs and methodologies already described, supervisors differ in their approach to regulation from a 'light touch' regime to detailed, intrusive and prescriptive processes. Over time the models developed within each supervisor's remit will come to reflect the preferences and values of the supervisor.

One specific source of divergences results from the use of supervisory add-ons. For some banks or sometimes for whole groups of banks, a supervisory add-on may be required and the level of add-on may differ from regulator to regulator. This may be imposed for example because of a perceived insufficiently conservative margin on risk parameters. One example would be the recent introduction by the UK's FSA of a 45% floor on Sovereign LGD.

As a result of these differences, cross-border banks often adopt and comply with the highest possible standards imposed by home or host supervisors. In most cases, these requirements are not the result of a joint position but reflect both the independent views and requirements of the home and host supervisors. The EBF Study on IRB Models in Europe[2] quotes a number of examples in relation to residential mortgage models, commenting that some banks may have to report the same mortgage portfolio with different RWA for consolidated capital and subsidiary capital purposes, where the parent and the subsidiary fall in different regulatory regimes. While such differences are significant within Europe, they are even more significant globally.

[2] European Banking Federation – Study on IRB models in Europe, residential mortgages – D0750K-2012, 14 June 2012 pp 42-45.

Differences due to national discretions will be reduced within the European Union with the introduction of the single rule book under CRD4.

2. Legal framework

The legal environment plays an important role, with variances between jurisdictions in terms of the treatment of collateral, foreclosure and bankruptcy, and tax arrangements.

a) Treatment of collateral

Different countries have different legal and regulatory procedures surrounding a creditor's opportunity to seize and sell collateral thus having an impact on bank recovery on defaulting loans. This will influence RWA because of its impact on LGD.

b) Foreclosure and bankruptcy

Depending on the jurisdiction, foreclosure and bankruptcy procedures can take more or less time, which has an impact on loss rates and RWA since the longer the recovery process, the higher the RWA. Some jurisdictions have in place specific default procedures for households and individuals. An extreme example is the "over-indebtedness" procedure in France, which prevents recovery so long as interest is still paid. These processes may translate into a deeper involvement of creditors in the defaulting individual's debt restructuring, and result in higher loss rates for banks.

In the Commercial Real Estate (CRE) business, there are differences between jurisdictions in terms of security assignation (ownership versus lease).

Bankruptcy procedures differ between country jurisdictions.

c) Taxation

Tax arrangements vary dramatically between countries and can influence the risk characteristics of bank products as well as the behaviour of client groups. For example, the tax deductibility of mortgage interest payments increases the borrower's repayment capacity and thus tends to reduce the RWA associated with these exposures.

CREDIT RISK - INTERNAL FACTORS

There are two main groupings of internal factors that underlie justified RWA divergences for superficially similar portfolios within different banks:

- Differences resulting from diverse model inputs, data and methodologies
- Differences resulting from diverse client, product and market mixes

Good quality models will be developed making use of the most relevant methodology for the client, product and market using the most appropriate internal data over a suitable history. Where any of these requirements cannot be met, extra conservatism may be added to ensure the model outcome is not incurring inappropriate risk.

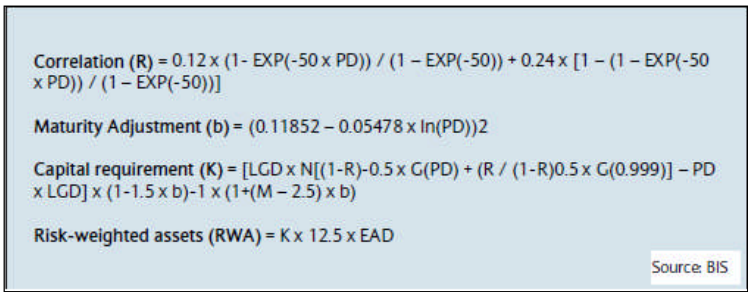
The oversight and approval mechanism depending on internal validation and regulatory supervision ensures that only adequate models are approved for use. Approved models are subsequently monitored. Overall, the regulatory environment ensures that the use of models allows capital requirements to be more closely aligned to each banks unique combination of risks.

1. Differences resulting from modelling inputs and methodologies

a) How credit risk RWA are calculated

To understand how differences in model inputs can have an impact on the resulting RWAs, it is useful to review the Basel II formula.

The Internal Rating Based Approach (IRBA) formula relies on the key inputs Probability of Default (PD), Loss Given Default (LGD), Exposure at Default (EAD) and Maturity (M). The RWA and related capital are computed based on these parameters, the first three of which are modelled independently. For example, for Corporates, IRBA is calculated using this formula:



Probability of Default (PD): A key input in the IRB complex formula is the probability of default (PD). Different interpretations and calculations of the PD may result in drastically different outputs in the formula. Risk weights increase as the PD rises, but the relationship is not proportional, and a large increase in the PD will typically translate into a more moderate increase in RWs.

Loss Given default (LGD): Collateral quality and quantity is an important driver of loss given default (LGD), especially as risk weights (RWs) move in line with LGD (the formula shows a linear relationship). Since LGD tend to have a greater impact on RWs than PD do, banks have an important incentive to extend secured rather than unsecured loans.

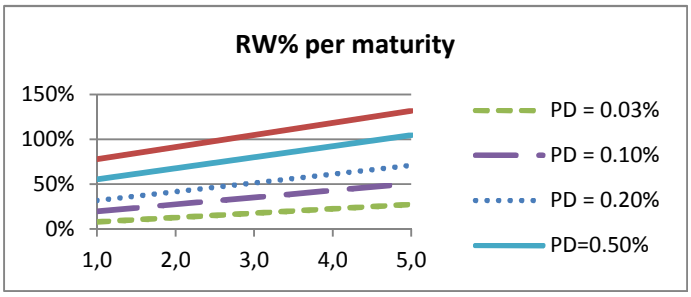
Maturity (M): Portfolio maturity also influences the ultimate risk weights. Longer dated assets attract higher risk weights than assets with a short maturity, to account for the greater uncertainty in loss prospects. Banks whose portfolios have a longer average maturity (product finance) will see an uptick in their RWAs.

Source : IMF Working Paper (WP/12/90) March 2012

i) Risk parameters - relative impact

RWA are computed from the four risk parameters described above: EAD, PD, LGD, Maturity, each of which can significantly influence the result. The EAD and LGD impacts on RWA offer an obvious linear relationship so that one percentage decrease in LGD results in a one percentage drop in RWA with a proportionate impact on capital requirements. However, maturity also plays an important role. For instance, the RWA on a loan with a 5-year (or longer) maturity can be up to 3 times higher than the RWA on an otherwise similar 1-year trade (see example below).

Therefore, comparing RWA by only considering risk parameters will only give partial answers. EAD, LGD and maturity can vary widely depending on the type of transaction, the way the loan is structured, and the available collateral.



ii) Divergence in metrics - historical, recovery and client data

PD, EAD and LGD models built for similar portfolios by different banks may justifiably diverge by virtue of those banks having available to them:

1) Different sets of historical data

Whenever possible, banks model their risk parameters (in particular PD) based on the historical data they have available on their own clients. This ensures that their own portfolio is modelled. Depending on the availability of such information, modelling will be impacted by the size and the time span of the data sample. Historical rates of default in Europe over the last 15 years have been consistently below those in Asia and the United States. Defaults in the United States have been higher than in Europe for both bonds and loans. Thus, to date, differences in default history have justified the use of lower risk weights by European banks.

However, the default experience may change in Europe in the coming quarters depending on the current economic situation which will have an impact on the "through the cycle" PD calibration.

2) Different sets of recovery data

Banks have unique internal processes and recovery information, drawn from their own client relationships and loss and recovery history. This will result in LGD models that reflect this divergence. For LGD, the expected recovery is dependent on each bank's internal recovery process as well as on their global relationship with their client.

3) Different levels of detail in client data

Banks will build internal models using the best available information drawn from their own client relationships. Banks may not have the exact information on the same counterparty as individual client behaviour may vary between banks. PD models in particular may draw on client specific information that may well not be publicly available.

When a bank is building a model on one of its core set of counterparties, the quality of the model is dependent on the amount of data available. When the bank is building a rating model covering a new market, the lack of client performance experience and data will be compensated for through the use of a wider margin of conservatism. Such an add-on for conservatism will make RWA comparisons between banks more difficult.

iii) Should banks have similar RWA for the same client?

It would be neither easy nor desirable to eliminate all differences between banks in their evaluation of their clients for the following reasons:

- Such unanimity would greatly increase systemic risk. Note that the use of public credit ratings prior to the financial crisis for many products accentuated the problems faced.

- In making a credit decision, a bank uses all available information. Private information cannot be shared across institutions which can create discrepancies in the way banks anticipate risks.

- In many cases, the actual final economic credit loss will not be the same across the banks, even on similar exposures, because of information asymmetry (banks will react more quickly by reducing their lines and negotiating with the client in advance), non-aligned interests (some banks might accept larger losses to save other interests), and varying recovery process efficiency.

Overall it would not be desirable for all banks to exhibit similar behaviour and have the same outputs.

b) RWA differences arising from diverse market characteristics

Market characteristics include market maturity, market structure, and the position in the economic cycle. Similar products sold by banks within the same asset category can diverge significantly depending on geographical product preferences, client type, quality of collateral, quality of client relationship, and on how portfolios are classed for regulatory purposes. These differences exist both within and, to an even greater extent, between countries. This divergence translates directly into differences in RWA, which legitimately reflect such portfolio diversity, as follows:

i) Market maturity

Market maturity is a factor in any RWA comparison discussion. Internal ratings for corporates are capped with the rating assigned to their country's central government. Consequently, when a bank is active in emerging countries, its corporate clients will attract a lower average rating and therefore higher RWAs compared to banks with business activities managed within the EU or other advanced economies.

ii) Market structure

Market structure is another factor. For example, more than one third of total loans granted by credit institutions in countries such as Denmark, Netherlands, Estonia, Sweden, Portugal and Poland are for residential mortgages. This is discussed more fully below, as such characteristics affect RWA most directly through the impact of product mix.

iii) Economic activity

The positioning of each country within its economic cycle is not synchronized across countries (even within the European Union). Peaks and troughs are not felt at the same time by all countries and hence risks recognised by models will vary according to the home country of each bank and the regional mix of its client base. In particular, risks on residential mortgages and Commercial Real Estate are not the same between EU countries since these markets are quite sensitive to the economic cycle.

iv) Product mix - examples within a retail portfolio

In retail banking there may be wide differences between similar products provided to clients in the different countries where a bank is active. Residential mortgages vary with respect to their maturity and the average loan amount compared to the property value (the loan-to-value (LTV) ratio may typically range from 51% to 92% across European countries[3]). In general longer maturity or higher LTV ratios are associated with higher default rates and higher RWA. Similarly, some retail products (either residential mortgages or consumer products) may be interest-only loans, where only interest is paid while the capital is due at maturity. Some countries (e.g. Switzerland, Denmark, UK) report significant interest-only mortgage loans and one country formerly reported interest-only revolving consumer loans. Such products may exhibit higher loss rates, which translate into higher LGD and hence into higher RWA.

[3] European Banking Federation – Study on IRB models in Europe, residential mortgages – D0750K-2012, 14 June 2012 p 14.

Demographic and cultural behaviours have an impact on loan products. For instance, in a residential mortgage loan, wealthy clients will generally exhibit lower loan-to-income ratios, which translate into lower RWA. Cultural behaviours such as the importance of home ownership, differs across countries and are important market drivers that can influence RWA.

Furthermore, the mortgage business model in the European Union is "originate to hold" as opposed to the "originate to distribute" model of other jurisdictions. This fact has a sizeable effect on the calculation of capital requirements, since residential mortgages are recognised as one of the lowest risk asset classes, so that a preponderance of mortgage lending within the portfolio will reduce a bank's overall average risk weight.

v) Quality of collateral

Loans may be collateralized with assets and/or guarantees of varying quality; the value and quality of collateral or guarantees received reduces the loss rate and translates into lower RWA for a superficially similar portfolio. This is particularly important for consumer products. Consumer loans specifically aimed at financing the purchase of an asset (such as a car) exhibit slightly lower PD and significantly lower LGD than loans for other purposes. This can be explained by the fact that the asset acquired is used as collateral that can be seized by the bank in case of default, reducing the amount at risk. The legal environment for collateral and guarantees differs across jurisdictions, thus impacting the effect of these credit risk mitigation techniques on the LGD estimates (see the discussion of diverse regulatory regimes under A) 1. above).

vi) Quality of the client relationship

The state of the lending network, quality of relationships with clients, and the ease and flow of information to the lender may impact RWA calculations. The customer base may differ significantly for the same product, leading to different RWA in banks targeting different client groups. Within consumer finance the target customer will differ significantly for different distribution networks. For example, in the same institution, revolving loans may be distributed by consumer finance departments directly to customers (short distribution chain but low client familiarity) or through a network such as retail banking branches, department stores or car retailers (long distribution chain). A further important factor is how well known clients are: when personal loans are distributed through a retail bank network, loan applicants are generally well-known customers of the branch and exhibit lower average risk parameters than those applying through to consumer finance departments or through department stores.

vii) Divergent regulatory classification

Finally, exposures pertaining to the same asset category may be classified in different regulatory portfolios in the IRB framework, thus attracting different RWA. For example exposures to small and medium size enterprises (SMEs) may be assigned to the corporate or to the retail portfolios, the latter attracting lower RWA. In addition the definition of an SME may differ across jurisdictions: a West European SME may be classified as Mid Cap in some East European markets so that an SME of the same size may attract different risk parameters and therefore attract different RWA according to its location and regulatory portfolio.

In the same way, commercial real estate exposures may be assigned to the corporate portfolio or to the income-producing real estate (IPRE) portfolio. In some cases this may be at the discretion of the bank. In other cases the allocation may be driven by an exogenous factor: the local regulatory treatment of IPRE. In some jurisdictions IPRE portfolios are restricted to the use of slotting criteria rather than an IRB model. While it may be argued that slotting tools sometimes take better account of the covenants attached to the transaction and may thus reduce RWAs, generally speaking slotting will provide less granularity and less risk sensitivity. In any case, a portfolio containing a high proportion of IPRE managed through slotting tools will have different RWAs from a similar portfolio managed through IRB models.

B) MARKET RISK - EXTERNAL FACTORS

1. Differing interpretation of prudential rules

For Market Risk, as for Credit Risk, Basel rules are not uniformly applied across jurisdictions with some countries applying Basel 1 rules (e.g. within the US for small banks) while others have already implemented Basel 2.5 rules (e.g. Europe since December 31st 2011). Even if the US implements Basel 2.5, market risk RWA comparison between US and EU banks will not be on a like-for-like basis since major implementation differences will persist. For instance, the US rule deviates from Basel 2.5 rules by lifting reliance on external ratings. This is likely to result in divergent capital charges for securitisation exposures between US and other countries.

Even within Europe, national supervisors may diverge on certain aspects of the European Capital Directive text. National discretions are however expected to reduce materially in the near future with the implementation of the Capital Requirements Regulation (CRR) and the increasing recourse to EBA guidelines and/or technical standards.

2. Divergent supervisory practices

While the capital rules are expected to become much more homogeneous, at least within Europe through the implementation of common regulation for all EU member states, differences in supervisory practices remain an important source of potential discrepancies between jurisdictions.

a) VAR multipliers determined by the home regulator

In the market risk regulatory framework, VaR and the Stressed VaR multipliers are the most significant drivers of RWA. These multipliers translate VaR and Stressed VaR into RWA and contain a quantitative component (the number of backtesting outliers) and a qualitative component determined by the home regulator. The practice of the use of VaR and capital add-ons can diverge significantly from one regulator to another.

For example, in the US typically VaR add-ons are not used, while some supervisors apply a complex RNIV (risk not in VaR) add-on framework. Similarly, some supervisors might impose floors to certain internal parameters while others do not or may simply override EBA guidelines. For example, in the UK the FSA insists on through-the-cycle calibration for credit spreads in IRC, whereas EBA guidelines state a preference for point-in-time.

b) Divergent treatment of securitisations

A common area of divergence is the treatment of securitisations. In some jurisdictions, they may attract RWA of up to 1,250% of market value, whereas in others they are treated as capital deduction items instead and therefore do not appear in RWA reporting, despite having an impact on the capital ratio.

c) Divergent IRC perimeters

Another concern across the industry is the heterogeneity of practices around inclusion of local currency government bonds in the IRC capital charge. Banks that are permitted to exempt local currency government bonds from IRC have huge competitive advantage in government bond auctions. EBA guidelines could prevent such discrepancies by imposing the same perimeter for all stakeholders.

d) Model approval strategies differ between regulators

Another major source of RWA heterogeneity lies in the diversity of the supervisory approval process for internal models. Some supervisors adopt an “all or nothing” approach to prevent banks from cherry-picking while others adopt a more granular approach so that model approval may be granted product by product with the Standardised Approach being the fall back option for non-validated

products. This will result in the same portfolio being managed through IRB models (with their greater risk discrimination) within one regulatory regime while the same portfolio is treated as standardised elsewhere.

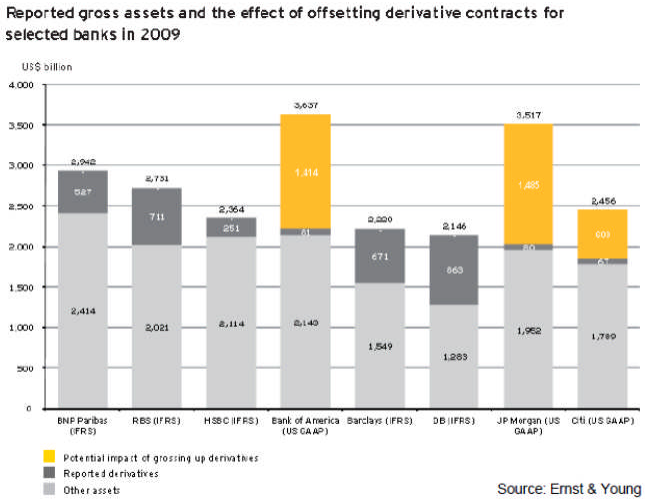
e) Differing disclosure requirements

Given the limited level of disclosure in some jurisdictions (for example Pillar 3 disclosure is not a requirement in the US), it is not easy to compare RWA across banks when the proportion of assets under the Standardised Approach and the Internal Rating Based Approach is unknown. Typically, for the same portfolio, RWAs derived from an Internal Rating Based Approach are usually lower than those derived from the Standardised Approach, since diversification or hedging benefits are less well recognized under the Standardised Approach.

f) Differing financial accounting treatments

Differences in accounting treatment across jurisdictions weaken the comparability of RWA to asset ratios. For example, there are differences in the reporting of assets on balance sheets between US GAAP and the IFRS used in Europe. US GAAP supports substantial netting of items which would be reported gross under IFRS, notably derivatives and repo positions. This will not equally affect all banks due to variations in their business mix but for large institutions with significant investment banking activities on both sides of the Atlantic, the difference in reported assets will be considerable.

The graph below shows a gap estimation of assets reported under US GAAP versus assets reported under IFRS-like rules for a sample of large US banks. The reported assets are 36% lower under US GAAP than those replicated under the IFRS rules (no derivatives netting) for a sample of 3 US banks (Bank of America, JPMorgan and Citigroup).



MARKET RISK - INTERNAL FACTORS

1. Interaction between capital rules, business models and product mix

a) Differences resulting from differing business models

Individual banks operate different business models, retaining varying types and amounts of risks. Typically, there are also systematic differences in business models across different jurisdictions. Differences in risk profile between banks affect their market risk RWA in various ways.

b) Increasing impact of differing business models

Since the introduction of Basel 2.5 there has been an increase in the impact of different business models on variation in RWA calculation. Such measures as the Incremental Risk Charge (IRC), the Comprehensive Risk Measure (CRM) and standard securitisation charge penalise credit trading

activities compared to other trading activities with a knock-on effect on overall RWAs. This is recognised in the IMF working paper published in March 2012: "Banks biased towards credit trading products will attract higher risk weights (due to the IRC) than banks geared towards flow forex, rates, equities or advisory operations."

c) Impact of product mix on modelling choices

Whether an institution is heavily engaged in certain market/product segments or not tends to influence its modelling approach to those products in relation to its risk management needs. For example, an institution which has very limited exposure to certain products can choose to use simplified conservative proxies rather than invest in extensive modelling.

2. Differences in RWA resulting from differing treatment of major model factors

a) Modelling methodologies for VaR and stressed VaR

VaR and stressed VaR (sVaR) are usually the largest contributors to the total market risk RWA due to the fact that a regulatory multiplier must be applied. It is because of this that VaR models usually attract the most interest from regulators and markets. There are a number of factors which must be taken into account in developing VaR models which will have an impact on the RWAs generated. Among other factors, the choice of VaR methodology (parametric, historical, Monte Carlo) and the methodology used to capture correlation across risk factors must be mentioned. Each methodology has strengths and weaknesses so that the choice among them has to be related to the characteristics of the portfolios modelled. These are examined in more detail in section 3.a) below.

b) Stress period selection for VaR modelling

In particular, the methodology for the stress period selection is critical. Banks determine this using a variety of practices ranging from judgmental approaches to quantitative approaches or a mixture of both. At present, the trend among supervisors is to require banks to choose as the stressed period the 1-year period maximizing the VaR. This is important as banks with different risk factors driving their VaR are likely to come up with different stress periods for their stressed VaR.

c) IRC calibration

IRC is calibrated to a much higher capital standard than VaR, namely a 99.9th percentile with a 1-year capital horizon. Unlike the outcome from VaR models, no regulatory multiplier is applied to IRC outcomes. Despite this, the contribution of IRC to RWA can be significant. IRC however, partly because of the target capital standard is materially dependent on modelling parameters used in extreme situations – correlation of default, market liquidity in periods of stress, probability of, and recovery rates in, such extreme events as the default of a AAA Sovereign.

3. Differences in RWA arising from methodology used to build IRB market risk models

a) Modelling methodology advantages and disadvantages

There are two phases in market model development for VaR models: the sampling step and the valuation step. The choice of methodology for each step should be appropriate to the portfolio. With respect to VaR and sVaR, banks use a mixture of approaches both for the sampling step and for the valuation step.

- Historical shocks are generally used in conjunction with full re-valuation of positions
- Monte Carlo shocks come generally together with valuation proxies (for example based on grid interpolation or Taylor expansion).

Historical simulations used in conjunction with full re-valuation present many advantages:

- No reliance on market risk factor distribution assumptions (other than that history may actually repeat itself),
- Non-linearity of valuation models is properly taken into account.

However taking the opposing view, using fewer scenarios increases the inaccuracy of the VaR measure.

The trade-off between valuation accuracy and number of scenarios will differ from one bank to another depending on its risk profile - for example the proportion of non-linear risk in the portfolio. The diversity of VaR practices is legitimate as it reflects the diversity of risk profiles and subsequently of risk appreciation.

b) Use of conservatism to offset risk

In order to ensure that the risk, and hence capital requirements, are not underestimated by the various types of models a suitable level of conservatism must be introduced. In practise, well calibrated models that best reflect the risks show comparable levels of capital usage, regardless of the methodology used.

C) BENEFITS OF INTERNAL MODELS, AND LOOKING AHEAD

1. Benefits of internal models

A risk-sensitive capital framework (modelled approaches) offers significant advantages:

- Aligning capital requirements more closely to risk (the 'use test');
- Promoting stronger risk management practices by industry;
- Improving the efficiency of capital allocation and other systemic benefits;

Overall, a risk-sensitive capital framework increases the stability and the resilience of the financial system.

a) Aligning capital requirements more closely to risk (the 'use test')

The internal modelling approach that has been adopted by large international banks allows capital calculations to reflect each bank's risk profile, reducing incentives for regulatory arbitrage and creating a framework for properly developed risk mitigants. Such advantages of internal models also work as an incentive for smaller or less sophisticated institutions.

A fundamental requirement for a bank to qualify for, and to retain eligibility to use, the internal model approach is to demonstrate to its supervisors that the information used to determine regulatory capital requirements is also used in the course of conducting its regular business, particularly in risk management. For example, the bank may need to demonstrate that credit risk parameters are actively used within the bank's lending policy and are material to the analysis of credit risk portfolios as well as to risk management dashboards and follow-up. Such demonstration of the effective use by risk managers of models and their outputs is the best proof of the internal credibility of those models.

b) Promoting stronger risk management practices by industry

There are several ways in which risk management systems within a bank may be improved through the use of internal models. These include:

- The collection of historical reliable defaults and credit loss data for the IRBA models requires a considerable effort which feeds through into the quality of information used for risk management. More specifically, advanced IRB credit models quantify the portfolio scorings and ratings in terms of PD, providing a common and objective measure across clients. This offers a great advance from earlier models or manual processes that ordered clients by credit

quality without quantification. Overall, IRB models have facilitated the introduction of much more targeted lending policies.

- IRB parameters make possible a number of quantified credit quality measures such as non-performing loans ratios and the cost of credit impairment. This improves the ability of risk managers to monitor credit quality trends and detect deterioration, and for senior management and supervisors to perform their risk oversight duties.

- The availability of IRB parameters - Probability of Default (PD), Loss Given Default (LGD), Credit Conversion Factor (CCF) - allows the estimation of the expected loss of transactions, customers and portfolios and, subsequently, its adequate allocation as credit cost within pricing models. It improves the risk-return assessment process, providing management with data on the credit margin as the first line of defence against credit losses.

- Conversely, the use of risk ratings in the day-to-day business of the bank, to manage credit risk or to help define pricing, helps ensure that any potential model weakness is reported and rectified in a timely manner.

- Looking specifically at credit recovery management, the LGD parameter provides a test of the adequacy of collateral valuation and collection practices, and consequently improves these.

- Internal models' capacity to quantify expected loss enables banks to evaluate their capital requirements in respect of the risks of credit losses more objectively. The current accounting methodology, based on the "incurred loss" concept, is under review for replacement with a more forward-looking approach based on a financial accounting definition of expected loss. In contributing to this, IRB models may play a role, not only to determine the required minimum capital, but also supporting the accounting requirements for credit impairment allowances, which after gross income constitute the second line of defence against credit losses.

c) Systemic benefits of a more risk-sensitive capital framework

Although it is true that internal models did not prevent the recent financial crisis, it would be unfair to say that they were the principal root cause of it. The financial crisis epicentre took place in the USA, where Basel 2 was not yet in place, and was the result of several linked flaws in the supervision processes, internal governance of banks, rating agencies, and prudential regulation of some areas such as securitization (partially addressed in Basel 2 although not in the US, and only for the banking book not the trading book) or for market activities. Note that market activities will in future be covered by new requirements addressed within Basel 3, as will the key element of the crisis in Europe related to liquidity. The use of internal models for credit risk, by definition, makes regulatory capital more risk sensitive and therefore helps to support financial stability.

d) Implications of reversion to common mandatory reporting of standard calculations

In the short-term, imposing a mandatory reporting of RWA based on the Standardised Approach would be counterproductive. The current Standardised Approach for credit risk and market risk is barely risk-sensitive and would provide a very poor reflection of a bank's real risks, potentially adding confusion for analysts. In addition it runs the danger of forcing banks into herd behaviours, greatly increasing the risk of financial bubbles.

Such a move would also impose an unnecessary operational burden to banks at a time when they are under pressure to improve the standards of their current internal models whilst at the same time, managing Basel 3 implementation. Furthermore it is unlikely that all banks would be able to report on this basis without significant additional investment in infrastructure. This would be time- consuming and costly.

2. Levelling the playing-field through harmonisation of rules

a) Greater harmonisation in implementation of prudential rules

European banks are supportive of EBA efforts to reduce national discretion in rules implementation. EBA guidelines must ensure a sound level playing field across market participants by providing clear high level implementation principles and by promoting best practices in terms of risk management.

Nevertheless, EBA guidelines should not be overly prescriptive. In particular, they should recognize the diversity of practices across the industry as long as they rely on sound principles. Too prescriptive guidelines can unduly penalize banks relying on sound methodologies that are however different from the guidelines.

More seriously, too prescriptive guidelines may create systemic modelling risk by inciting herd behaviour and will potentially introduce moral hazard as banks would have less ownership of model design and calibration.

b) Harmonisation of accounting standards

Comparison of RWAs between banks is often made by reference to total assets, but those total assets depend on the accounting policies applied. These vary between jurisdictions. Greater convergence in accounting standards, especially between US GAAP and IFRS, would undoubtedly strengthen RWA comparability. The denominators of the RWA to assets ratio commonly used by market analysts would then indeed become more homogeneous.

3. The global monitoring process: stability and resilience

The overarching goal of the Basel framework is to ensure the stability of the global banking system. The framework thus specifies a common body of international rules and guidelines for managing credit and market risk. Basel 2 focuses on calculating capital requirements based upon measuring and managing risk through internal models.

The alternative of forcing similar risk weightings for the same client, regardless of profit mix, business model and environment, is liable to create herd behaviour and could well destabilise the global banking system by removing the link between capital and risk.

a) Validation by regulatory supervisors

In order to be able to use their internal models, banks must obtain validation from supervisors. This entails stringent initial and on-going requirements including internal validation and ‘use test’ evidence.

b) Banks’ internal controls

Internal models are systematically documented in detail, and then checked by validation units, internal audit or independent internal review teams, and finally by the supervisor. Validation units are independent from the modelling functions and team members are expert in prudential topics. They will be familiar with the regulatory supervisor’s objectives and requirements and will apply agreed guidelines aligned with those of supervisors. The framework related to the follow-up of recommendations is very strict and requires direct involvement by management. Independent validation units are monitored by the supervisor as a whole as well as on specific issues at any time. Internal audit monitors the validation unit. Internal models that pass internal independent validation are subsequently reviewed by the relevant supervisor. The supervisor’s assessment will include the suitability of the bank’s organisational structure, the adequacy of the human and material resources assigned to internal models, and the adequacy of bank’s calculated capital requirements.

c) Initiatives to ensure the robustness of banks' models

Models should reflect the economic reality, which is complex. It is essential that independent and supervisory review take account of this complexity, underpinning the quality of banks' models and translating this complexity into value for investors. This is true for validation units as well as internal audit. Banks validate their models on an ongoing basis, and those that use an internal model-based approach to calculate regulatory capital are required to do so - the approval of IRB models by supervisors requires the validation of their predictive power and the establishment of sound model maintenance controls.

Moreover, following the initial validation and introduction of models, the Basel 2 framework requires regular back-testing and benchmarking of banks' internal risk parameters, ensuring the consistency of methods and data through time, documenting changes in methods and data, and taking account of unexpected changes in economic conditions. Back-testing is a central element of the model validation process. It is performed to compare PD predictions with actual observed default frequencies, leading where necessary to model recalibration. Models are back-tested periodically, and at a minimum once a year, in order to ensure that estimated risk parameters reflect actual losses incurred. To ensure reliability of the result, back-testing is performed by independent units. The results are presented to management and are shared with supervisors.

4. Disclosure

a) Pillar 3 metrics and their current use

Since 2008, the regulatory requirement to disclose metrics pertaining to risk management and capital adequacy through Pillar 3 reports has provided the market with extensive information on banks' portfolio quality, at a level of detail never seen before. It is worth remembering that only Basel 2 regulated banks do disclose these metrics, giving greater transparency to their risks and underpinning its translation into capital requirements.

However, given the bank- and portfolio-specific character of internal models as described above, linked as they are to the institution's unique portfolio selection, type of business, risk modelling, etc, it is difficult for market analysts to mine data from Pillar 3 information that will permit them to draw conclusions across banks. Some have concluded from this that IRB models should not be trusted

We strongly believe that market discipline is important, as the financial crisis has shown, and that banks should provide information to enhance the transparency of IRB models. However, the material reported under Pillar 3 will support the monitoring of a given institution over time far more satisfactorily than it will allow comparisons to its peers at a given point in time.

b) EDTF and improving the use of Pillar 3 metrics

Increased disclosure of information supporting RWA calculations, including details of models and model performance metrics, will improve market confidence in RWA and the models on which they are based. The Enhanced Disclosure Task Force (EDTF) has set out a framework for the disclosure of a greater quantity and quality of information, which will improve market understanding of business models, risks and RWA.

We believe that further harmonisation of Pillar 3 reporting requirements on the lines recommended by the EDTF will provide an efficient way to address the differences between IRB models, for example by linking the risk parameters of models to the business they are modelling, or by explaining RWA variance over a given period of time by reference to the main model drivers. Improved disclosure is the way forward, and is definitely a better option for all parties than return to a standardised capital calculation.

5. Benchmarking

Internal models are key to proper risk management and alignment between risk and capital. The holding of an appropriate capital requirement is key to ensuring safe financial markets. Floors, buffers and standardisation are the wrong response to a real concern: how to ensure that internal models are sound and robust enough to serve these two key purposes.

RWA benchmarking initiated by SIG is a helpful safeguard against model risk, since it brings real added value to the model validation process.

The industry and regulators should agree on common standards to conduct benchmarking exercises in a way that removes any ambiguity that could pollute the results. We recommend that the standards should follow the guidelines below:

- Benchmarking RWA across banks should be conducted on an on-going basis and not as a one-off exercise.
- Participating banks should take part in the specification of the benchmark portfolios to ensure they are consistent with market practices and standards.
- Benchmark portfolios should be representative of banks portfolios.
- Due consideration should be given to the relative size of single portfolios as it is a key element for the sake of capturing the diversification effect at the global portfolio level.
- A sanity check on portfolio market values should be performed a few days prior to the official reporting period.
- Credit Risk and Market Risk measures should be reported on a dual basis, one free from national supervisor specific requirements and another including these specific requirements. For example, for Market Risk, the VaR indicator should be reported both on a stand-alone basis and a regulatory assigned multiplier.
- Results of the benchmarking exercises should be disclosed to participating banks on an anonymous basis.
- Above all, they should be extensively shared among supervisors (for instance within Supervisory Colleges).
- The benchmarking exercise should lead supervisors to undertake concrete actions to curb illegitimate RWA discrepancies across banks. In particular, supervisors should try to identify cases where the outlier's results are due to inaccurate or too lenient methodologies and should ask outliers to take corrective action.

6. Conclusion

This paper has examined the main external and internal factors that can lead to divergences in RWA calculations from IRB models between banks reporting superficially similar portfolios in Credit Risk and Market Risk.

An understanding of the impact of these factors is particularly important for two stakeholder groups: regulators overseeing banks' use of models, and reviewing and updating their guidance; and market commentators who are required to interpret reported RWA meaningfully.

There are three major conclusions which the EBA may wish to take into account in its future thinking:

1. IRB modelling remains valid

The logic of using IRB models to estimate the actual risk faced by a bank in lending and of using the calculated RWA to guide decisions on the amount of capital to be retained remains sound. As described in Section C.1 above, the benefits in terms of well-directed risk management practices, efficient capital allocation and the alignment of risk with business practices are very valuable and should not be abandoned.

Attempts by regulators to standardise risk assessment and the resulting RWA calculations that contradict the recognition of genuine risk diversity among banks is damaging to this process and should be avoided. Attempts to make all banks assign the same risk level (e.g. application of a supervisory floor) to a common client, regardless of the banks' recovery processes, legal environment and of the portfolio mix and private information held by the bank exemplify the kind of standardisation that is not helpful.

Generally, supervisors should recognise the impact of guidance on the ability of models to distinguish real, evidence-based risk differentiation and should avoid guidance that will make it less effective. We therefore call for:

- Recognition that the alignment of risk, business practice and capital allocation made practicable by IRB modelling is intrinsically beneficial;
- A reduction or abandonment of the current move towards regulatory guidance that 'flattens' risk assessment for all banks so that the real diversity of risk cannot be assessed;
- An understanding of the fundamental fact that the same client may legitimately have a different risk profile within different banks.

2. A level regulatory playing field

The current divergence in regulatory guidance on specific model inputs does not assist the explication of underlying differential risk profiles, but results in models in different regimes being built to divergent standards, which will then give divergent results for no other reason than the regulatory guidance. The introduction of CRD IV within Europe will greatly reduce this problem within this region, but leaves open the issue of comparable RWA generation across the globe. The problem is particularly acute for banks operating under multiple regimes.

Resolution of the issues surrounding divergent guidance and home-host supervisory practices is the single most significant action that could be taken to improve the current approach. We therefore call for:

- Greater co-ordination and discussion between regulators, and an end to multiple and divergent regulatory guidance being applied to the same portfolio;
- Convergence of guidance on key model inputs globally;
- Open discussion between regulators and banks about the optimal regulatory environment.

3. Transparency, disclosure and benchmarking to improve market understanding

Pillar 3 metrics provide a valuable and extensive resource but at present do not well support simple comparisons between banks. Greater transparency will ameliorate this problem, particularly in areas picked out in this paper as impacting genuine diversity of risk between banks and if it is accompanied by better understanding of the legitimate reasons for divergent risk profiles. We therefore call for:

- Improved harmonisation of reporting requirements and extended disclosure;
- A better understanding in the markets of the strengths of IRB modelling supported by dialogue with the banks over the advantages and disadvantages of IRB modelling