KPMG

Historical moment (or more of the same)?

The Basel capital standards

KPMG International

July 2017

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Introduction

There has been a public interest in banking regulation in recent months. The US elections resulted in a public discussion to overhaul the Dodd-Frank Act, which was one of the main regulatory responses to the 2008 financial crisis. In Europe, the public debate focuses on how the current low profitability of banks and high non-performing loan portfolios in some countries could pose risks to the stability of the system. Amid these developments the Basel Committee aims to finalise reforms on capital requirements. Their recent meeting in Sweden did not result into a final outcome.

KPMG member firms continue to see regulators after the Committee's meeting in Sweden openly struggling to complete the final package of post-crisis reforms, which we have been referring to as "Basel 4" since 2013. The reforms aim to address flaws in the way banks are required to measure risks and determine how much capital they need to withstand unexpected losses. Credit risk measurement is particularly surrounded by controversy in the public debate right now.

The finalization of post-crisis capital standard reforms would mark an important milestone in the journey by policy makers and regulators to strengthen the resilience of the banking sector (and address the weaknesses identified through the 2008 financial crisis).

This piece of thought leadership aims to put this latest package of Basel reforms in historical perspective, focusing on the goals of regulators and politicians to anticipate the way forward.

First, we explore several short-term scenarios in finalizing the post-crisis reform on global capital standards.

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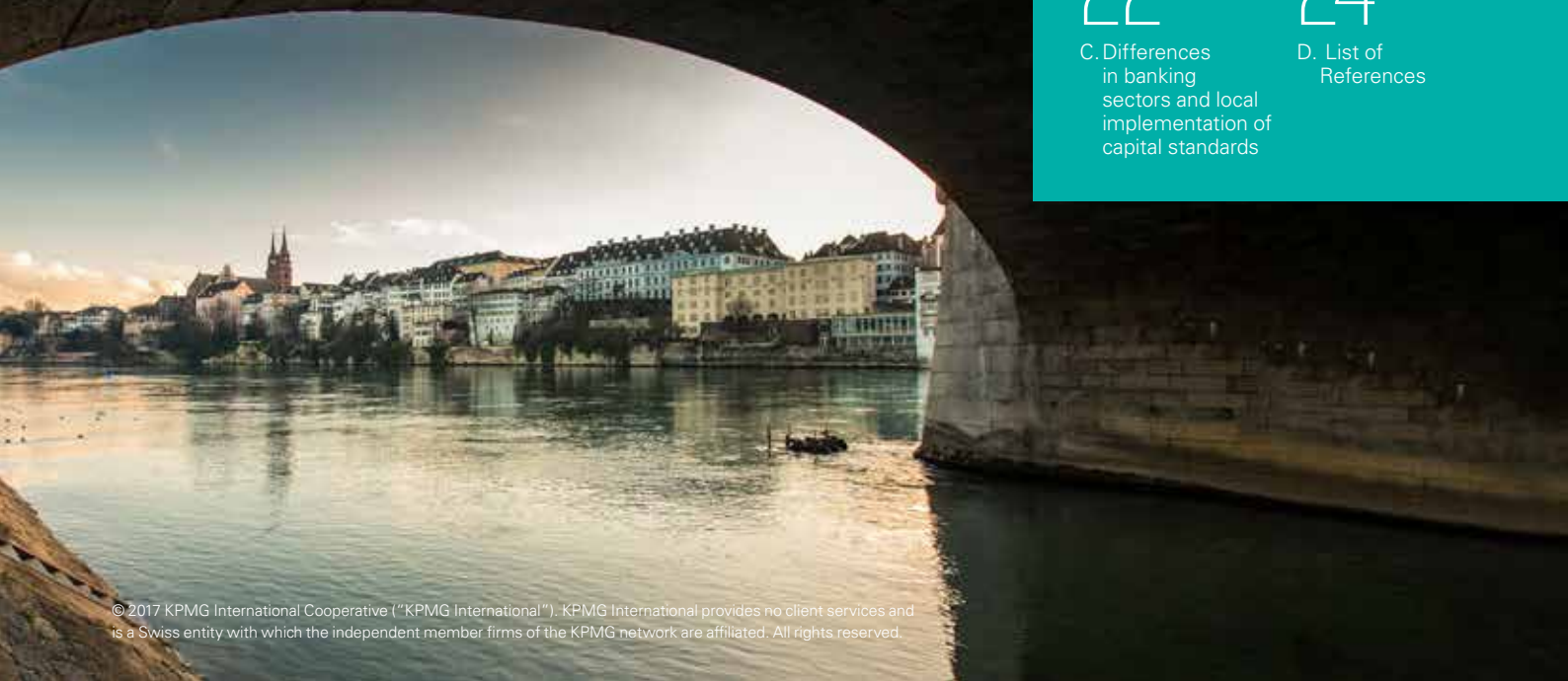
Second, we explain how and why the outstanding reforms should contribute to an overarching policy goal and response to reduce risk-weighted assets (RWA) variability.

As part of the appendices, the potential issues with RWA variability and the models used to estimate RWA will be touched upon. We consider the evolution in Basel standards – which aims to put the current discussions in historical perspective and we provide insight into how past implementation of Basel capital standards in the EU and the US can complicate current discussions.

Contents:



Executive summary

This piece of thought leadership aims to put this latest package of Basel reforms in historical perspective, focusing on the goals of regulators and politicians to anticipate the way forward.

The Basel Committee aims to reach an agreement on the post-crisis capital standard reforms soon. Almost 10 years after the financial crisis, yet a few major items are still on the table for the global standard setter to agree upon. They include in particular the credit risk measurement techniques employed to assess how much credit risk banks run. The answer determines the minimum capital banks need to hold to withstand unexpected losses.

The negotiations seem to be in a deadlock. A final agreement by the committee was due year-end 2016. It appears that finding a good deal for all member jurisdictions is proving to be difficult.

Basel 4 in a historical perspective

To fully understand the continuing discussion on the reform package regarding capital standards, it is helpful to consider the historical development of banking regulation, its implementation and its impact on the global banking industry.

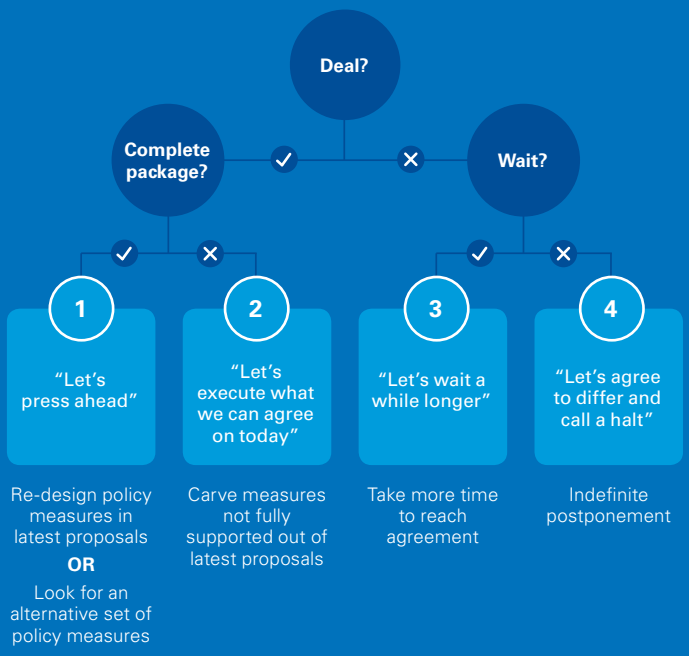
An increased emphasis on risk-sensitivity and complexity can be seen in the evolution of Basel capital standards over the last 30 years. Financial innovation leading to more complex products and aligning regulation more with the credit risk practices banks employ in pursuit of more accurate risk measurement are two drivers for this phenomenon. As such reform discussions are very technical.

After designing the post-crisis Basel 3 framework in 2010, the Basel Committee decided that a rebalancing of the trade-offs between complexity (risk sensitivity) and comparability was still required.

As such, the latest package of reforms aim to solve the contradictions and challenges. Solving this problem is difficult, due to the complexity of the current standards and with more parties involved compared to the early days in which Basel 1 was established. This is part of the reason why negotiations are progressing so slowly.

Policy makers should think carefully about which question needs to be answered first. Does the solution lie in better rules, or in a harmonised application of the existing regulation? It may even be that a combination is required, but this still leaves open to what extent this can be done simultaneously.

Figure 1 – Four short term scenarios in finalising post-crisis reforms on risk measurement



> Policy makers should think carefully about which question needs to be answered first. Does the solution lie in better rules, or in a harmonized application of the existing regulation?

Four scenarios that could unfold

We see four short-term scenarios which could unfold. A first scenario is to "**press ahead**"," when it comes to a deal. The terms that apply to the negotiated package will drive the impact. The Basel Committee aims to not significantly increase overall capital requirements, however a capital-neutral impact on an average global level may play out differently at the level of individual jurisdictions. Proposals made so far led to concerns that it would disproportionally affect capital requirements for EU banks.[1]

If EU policy makers would prefer to focus more on risk measurement, then we see three different routes that could be pursued:

- Argue for credible risk-based alternatives to the measures driving increased capital requirements.[2]
- Agree with other Basel Committee members on long transitional arrangements. The EU would accept the higher costs of capital, but over a long time period so that unintended side-effects are minimised.[3]
- Employ remediating policies within the EU to soften the impact of any undesirable side-effects. Policies at this level are more likely to result in an inconsistent implementation of Basel capital standards.

A second scenario would be to "**execute what we can agree on today**". It would be possible to delay the application and calibration of a capital output floor and any other constraining measures not receiving sufficient support, while pressing ahead with the proposed changes to the standardized and internal model-based approaches to credit risk and operational risk.

A third scenario is: "**Let's wait a while longer**". Any policy agreement will in any case be difficult until the US Federal Reserve appoints a new senior financial supervisor.

A last scenario is one where policy makers "**agree to differ and call a halt**". This scenario comes with no prospect of any further agreements. At best, the topic of (credit) risk measurement comes back to the table in the context of the Basel Committee's strategic review of the capital standard framework.

1. Bloomberg (2016), (2017)
2. KPMG (2016)
3. In our publications such as 'Better Regulation in Banking (2013) and 'Banks' strategies and business models: capital myths and realities' (2016) we showed that higher capital requirements are not a 'free good'. They can increase cost of lending, reduce availability and have negative percussions for economic growth. They can also have benefits through increased financial stability. Results from cost-benefit analyses can differ for the short and long term.

Alternatives to proposed policy measures: focus on a better application of existing rules and wait to see what this will bring

The Basel Committee's finalisation of post-crisis reforms ultimately aims to reduce excessive variability in risk-weighted assets (RWA) across banks while remaining a risk-sensitive framework.

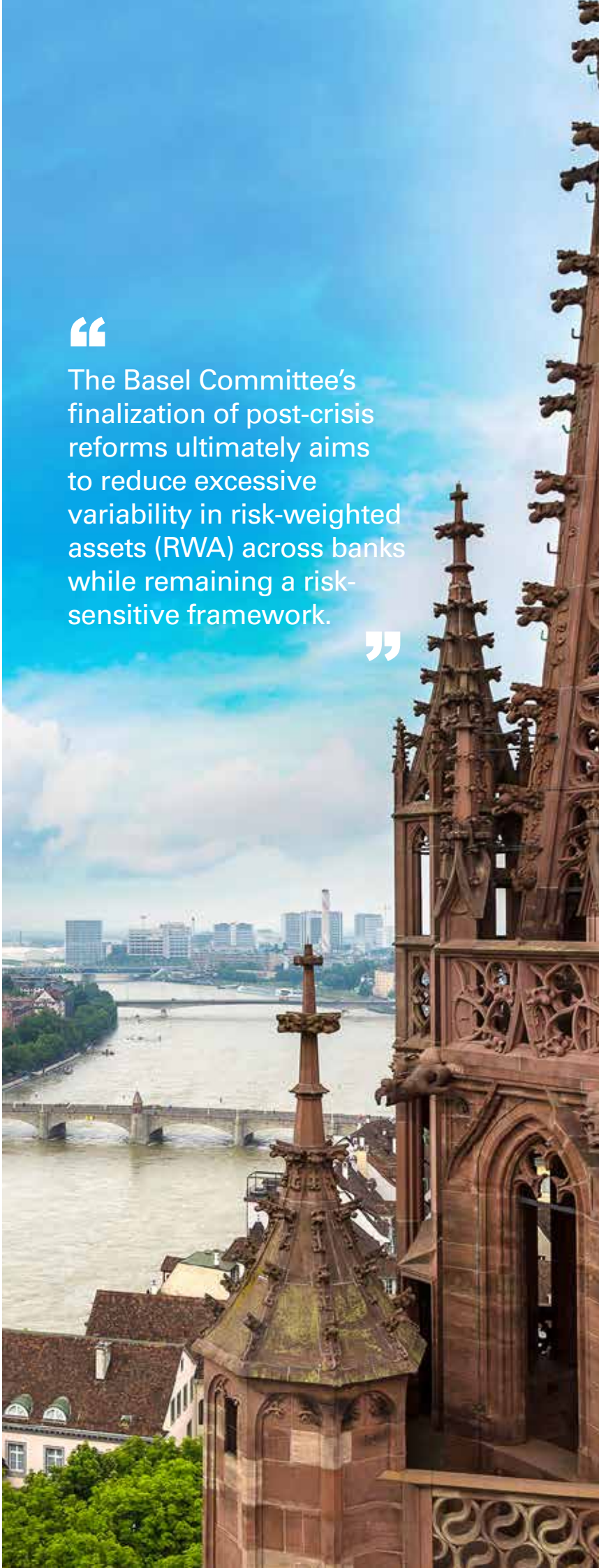
The capital output floor seems to be the most controversial policy measure. Alternatives to the capital output floor should fulfil the same objectives that the Basel Committee expressed for the floor in order to be considered credible.

One alternative which in itself promises to deliver on most of the objectives is the ECB's Targeted Review of Internal Models (TRIM) as it aims to i) reduce inconsistencies and unwarranted variability when banks use internal model and ii) harmonise practices. As such, it aims for a better application of existing regulation.

Extension of the ECB's TRIM to other banking supervisors world-wide coupled with a strong supervisory mandate to act upon findings with targeted measures may prove to be a good alternative while not undermining the overarching aim of the Basel framework to be risk-sensitive.

Key considerations for policy makers

- Are revised standards meant to be solely focussed on reducing unwarranted RWA variability?
- Do policy makers have a clear understanding of how current post crisis regulations affect the sector and economy and are unintended side – and second order effects being addressed adequately?
- Should we wait for the results of ongoing efforts to improve consistent implementation and interpretation of current international standards and keep risk-insensitive back-stops at bay unless results are not satisfactory?
- How do revised standards affect other political goals, such as financial stability and economic growth?



Historical moment?

The Basel Committee may only reach a final agreement on capital requirements rules once the currently vacant position of US Federal Reserve top financial supervisor has been filled. Therefore KPMG professionals believe, several short-term scenarios are possible – see table below.

	Scenario	Details	Immediate effects
Deal	"Let's press ahead"	This scenario might be based on a negotiated package, with the changes to credit risk (revised standardized and internal ratings based (IRB) approaches) and to operational risk (revised standardized approach and withdrawal of internal model approach) largely as proposed by the Basel Committee in 2015 and 2016. This might include a lower capital output floor and/or a longer transition period than was initially proposed, or the replacement of the least supported measures by credible alternatives.	It will be up to the individual jurisdictions to implement the negotiated package without watering down the package through flanking policies.
Deal	"Let's execute what we can agree on today"	It would be possible to delay the application and calibration of a capital output floor and any other constraining measures not receiving sufficient support. Instead, the Basel Committee could press ahead with the other remaining parts of Basel 4, including the moves to new standardized approaches to credit risk and operational risk.	Individual jurisdictions could then choose to go further if they wanted to (as US, Norway and Sweden have already done, each in various ways). This may imply a continuation of different supervisory practices and rules regarding internal models.
No deal	"Let's wait a while longer"	This scenario seems the most likely immediate outcome, as either (i) the various US delegations ask for time to reconsider their positions in light of current national pressures and developments in the US, or (ii) those opposing a capital output floor dig into their trenches on the basis that a US repositioning seems inevitable at some point.	Nothing will then happen in the near term but this is not the end of the world for regulation because the current position just continues as Basel 3 plus the revised market risk framework, with the Basel 2 approaches to credit and operational risk remaining to be applicable. Indeed, that is exactly the position reflected in the European Commission's proposals for CRR 2 and CRD 5, as published in November 2016.
No deal	"Let's agree to differ and call a halt"	This would lead to a pause in international standard setting. This might result, for example, from the US ceasing to participate in the Basel Committee (an extreme outcome) or participating only on the basis of an "America first" agenda that undermines the collective spirit of international standard-setting. An alternative extreme would be for the EU to withdraw from global standard-setting and purely focus on convergence of standards within the Union.	This scenario has the same immediate effect as the third scenario, but with no prospect of any further agreements.

A good deal for all seems to be difficult under each scenario. Also, underlying differences between EU and US complicate deal-making, which include (i) varying banking sectors due to the different role of banks in financing, (ii) different existing standards on internal models, and (iii) varying degrees of internal model usage. Similarly, different outcomes across jurisdictions also add to the complexity.

The Basel Committee aims not to increase overall capital requirements, but the current proposals seem to affect regions in an imbalanced manner, with concerns that mainly EU banks would see higher capital requirements.[4]

4. Bloomberg (2016), (2017)

Striking a deal

The overall policy goal for the Basel Committee is to reduce excess RWA variability and its proposals should in a narrow sense be assessed against their contribution to this goal. Higher capital requirements for mainly EU banks may as such be argued as being a side-effect of certain measures such as the capital output floor. Such side-effects come with their own pros and cons.

Only the short short-term scenarios "Let's press ahead" and "Let's execute that we can agree on today" would essentially result in **a global deal being either a complete negotiated package or a package with the least supported measures carved out.**

Under a complete negotiated package, **a re-design of the least supported measures such that they will no longer impact capital requirements may undermine credibility of the package**. Taking these specific measures out of the proposed Basel standards and leaving an implementation choice fully with individual jurisdictions would be an alternative to cope with the apparent deadlock in finalising the reforms, but this comes at the expense of international convergence in standards.

Press ahead: alternative measures?

If regulators are committed to press ahead to achieve a complete negotiated deal in the short term, then **another alternative route would be to replace some of the measures in the latest proposals.**

In particular, the option to set an aggregate capital output floor received criticism and is one of the least supported measures in the latest public proposals.[5] Figure 2 shows the Basel Committee's original objectives of the permanent capital output floor. Alternative policy measures to replace the capital output floor would together need to meet the same objectives in order to be considered as a credible alternative.

Figure 2 – An alternative set of measures: how about ECB's TRIM?

Objectives of the capital output floor		Addressed under ECB's TRIM?
Prevent undue optimism	In bank modelling practices, thereby ensuring that modelled capital requirements do not fall below a prudent level.	ECB will review for instance banks' model governance, margin of conservatism, independent validation and internal audit functions and banks' methodologies underlying estimations of risk parameters.
Mitigate model risk	Due to such factors as incorrect model specification, measurement error, data limitations and structural changes that may not be captured in historical data	ECB's Guide to TRIM encompasses a dedicated section on data quality for credit risk models. It also assesses to what extent data issues are reflected in margins of conservatism added to risk estimates.
Address incentive-compatibility issues	As banks face incentives to use overly optimistic internal models to reduce RWA and thereby maximize return on equity.	ECB will assess in addition to the validation and internal audit functions also compliance with "use test" requirements. Basel Committee: "these requirements seek to ensure that banks use the same inputs and methodologies for their internal risk management purposes as they do for regulatory purposes."
Improve comparability	Providing a standardized assessment of risk which can be compared against internal model-based outcomes.	Internal models are assessed against a standardized assessment methodology. Benchmarking of practices and outcomes is performed and taken into account.
Constrain variation	In model-derived RWAs that arises from differences in bank and supervisory practices, thereby improving the comparability of RWAs across banks and over time.	ECB's Guide to TRIM represents their view on the appropriate supervisory practices and it provides ECB's intensions on how to interpret the relevant EU law.

Other alternatives

- Make greater use of benchmarking
- Allow geographical calibration of risk parameter restrictions
- Greater use of data pooling
- Increase efforts to understand practice-based factors and target them on an individual basis
- Enforce more extensive disclosures
- Prioritise consistent implementation of existing global standards where possible and disclose effects of inconsistencies.

One alternative which in itself has the potential to deliver on most of the objectives is ECB's Targeted Review of Internal Models (TRIM). Figure 2 shows based on ECB's Guide to TRIM (2017) how it can meet the objectives. Such reviews could address factors driving observed unwarranted variability in RWA in a targeted manner. As shown in section 4 these factors represent a rather diverse group.

ECB's TRIM covers 68 EU banks (directly supervised EU banks with approved Pillar 1 internal models). Although other jurisdictions are not covered, the EU is the largest region in term of number of banks allowed to use Pillar 1 internal models.[6] Results could significantly bring down unwarranted RWA variability measurable at a global level.

The scope of the TRIM may be perceived to be too limited from a global perspective. A "global" TRIM including all internationally active banks using internal models leveraging ECB's Guide to TRIM (2017) may then be a direction to pursue by policy makers. Yet it would require Basel Committee members to agree upon a single view on the appropriate supervisory practices and an approach to deal with inconsistencies in Basel capital standard implementation. It also assumes that supervisory mandates are sufficiently strong to act upon findings effectively.

> "A good deal for all seems to be difficult under each scenario. Also, underlying differences between EU and US complicate deal-making..."

To the extent that jurisdictions show material differences to the Basel capital standards, policymakers need to agree upfront how to cope with such differences as part of the reviews.

Other alternative measures that could be (re-) considered to be part of a set of measures to replace the capital output floor include:

- **Make greater use of benchmarking** to identify outliers across time and banks and scrutinise justification of differences. The EBA's annual supervisory benchmarking exercise on internal models – the latest results of which were published in March 2017 – is an example of how benchmarking techniques can improve consistency. The outputs from internal models could also be compared against standardized approaches, with banks required disclose differences and to provide explanations for these differences in a uniform manner to strengthen the effects that market discipline can have on financial stability.
- **Allow geographical calibration of restrictions to risk parameters** by supervisors, subject to a (central) governance mechanism that ensures consistency in and appropriateness of supervisory practices.
- **Greater use of data pooling to improve risk measurement** for low default portfolios where historical default observations are limited. Greater use of data sharing among banks and supervisors may help to create data sets sufficiently large to generate credible credit risk estimates. Larger yet possibly more heterogeneous data sets may lead to better risk estimates than smaller yet possibly more homogeneous data sets. Safeguards are required to cope with aspects such as data privacy and standardisation.[7]
- **Increase global efforts to understand better the effects of practice-based factors** leading to RWA variability across jurisdictions and address factors on an individual basis.
- **Enforce more extensive disclosures** using uniform formats on modelling practices by banks and supervisors across jurisdictions.
- **Prioritise consistent implementation of existing global standards** where possible in terms of, for example, additional regulatory guidance on default definitions and estimation of risk parameters. Disclosures of the effects inconsistencies have on individual banks' RWA may help investors and market analysts to better interpret reported figures.

These suggestions assume that supervisors have a mandate sufficient to take appropriate supervisory measures such as requiring capital add-ons for model risk and increasing bank-specific risk estimates.

In deciding upon the policy measures a balance will need to be struck between risk-sensitivity, comparability and simplicity.

5. Bloomberg (2016), (2017), European Commission (2016)
6. Basel Committee on Banking Supervision (2013)
7. An example of an existing data pooling initiative is Global Credit Data, which pools data on the basis of confidentiality, anonymity, flexibility, comparability and reciprocity.

Reducing RWA variability is the main policy goal to achieve

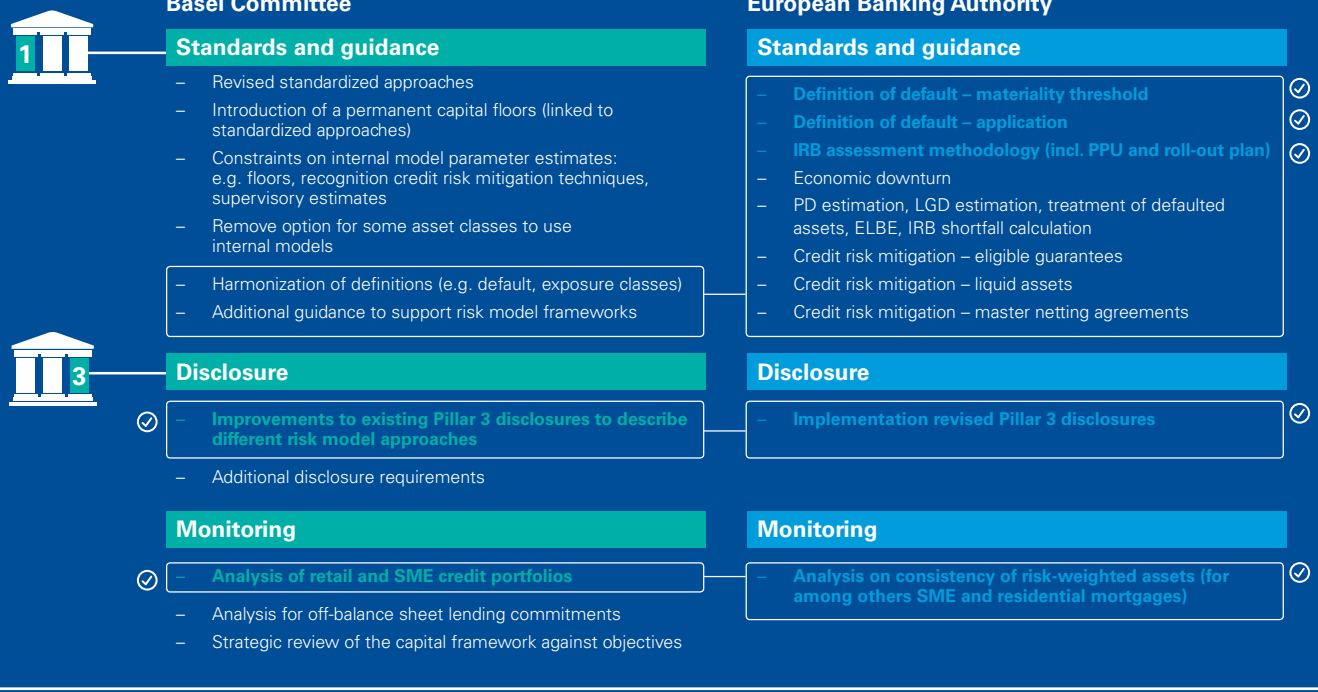
The current discussions **fit within a multi-approach policy response initiated by standard setters in 2013 to reduce excessive variability in RWA**. As shown in Figure 3, this focuses on reforming Pillar 1 risk measurement and Pillar 3 disclosure standards.

The response centred around three areas:

- **Pillar 1 standards and guidance:** developing prudential proposals to improve the standardized, non-modelled approaches for regulatory capital requirements that will also provide the basis for the use of floors and benchmarks, undertaking reviews of modelling practices, providing additional guidance, and using the leverage ratio as a non-risk sensitive 'backstop' measure.
- **Pillar 3 disclosure standards:** strengthening the disclosure requirements related to risk weights.
- **Monitoring:** ensuring proper implementation by monitoring outcomes in RWA variability.

Figure 3 – Policy response to reduce excessive variability in risk-weighted assets

✓ Work completed



This policy response followed after several reviews of banks' variability in risk-weighted assets of which a first short review was conducted by the Basel Committee in 2012-2013.

Today's capital adequacy framework reflects developments in the financial sector over several decades, which led the Basel Committee to conclude in 2013 that the current framework had become too complex. The Basel Committee announced in 2013 that it would develop a view on addressing factors driving complexity in a more fundamental manner, thereby reconsidering the linkages between internal and regulatory models. Careful analysis and study would be required to ensure that the benefits of the current framework were preserved.[8]

Some thinking on fundamentally re-designing the capital framework included:

- Re-assessing the weight given to each of the three pillars of the framework. The initial Basel 3 reforms had focused on Pillar 1.
- Assessing alternatives[9] to the economic capital risk measure implicitly taken as a suitable measure for regulatory purposes.

Following the strategic review the Basel Committee concluded in its 2015 report to the G20 that its ongoing reforms aim to address the fault lines where standardized approaches are to be enhanced in terms of risk sensitivity and robustness, the role of internal models is to be reviewed and the design and calibration of 'back-stop' measures is to be finalized.[10]

Pillar 1 standards and guidance

Since 2013, the Basel Committee finalized a new standard for market risk (2016) and issued proposals to improve standardized approaches for credit and operational risk (2014, 2015 and 2016) and put constraints on the use of internal model based approaches for credit risk (2016).

In parallel, the Basel Committee called for further harmonisation of definitions used in risk measurement and in how jurisdictions implement the Basel capital standards in regulation. In 2012, the G20 endorsed the Committee's adoption of a comprehensive Regulatory Consistency Assessment Programme (RCAP) to assess the implementation of the Basel framework across internationally active banks. Different practices is one driver behind observed RWA variability of which desirability can be questioned – see next section.

8. Basel Committee on Banking Supervision (2013)
9. Example measures listed by the Basel Committee included 'tangible leverage', 'leverage ratio and a standardized approach' and a 'pre-commitment approach based on income volatility'.
10. Basel Committee on Banking Supervision (2015) ?? where in text?

The Basel Committee's call to harmonise definitions and practices has been answered in the EU through the development of additional regulatory guidance by the EBA (also shown in Figure 3) in 2016. Additional guidance is expected to be issued. This may result in considerable harmonisation by both banks and supervisors within the EU.

In addition, the main EU banking supervisor, the ECB, initiated its Targeted Review of Internal Models (TRIM) in 2015.[11] Through the TRIM the ECB aims to assess whether the internal models currently used by banks comply with regulatory requirements, and whether they are reliable and comparable. In particular, harmonisation of supervisory and bank practices is a major objective to reduce excessive RWA variability. It is expected to be completed in 2019.

Outstanding discussions

The main outstanding reforms at the level of the Basel Committee are:

- Revisions to the standardized approaches for credit risk measurement.
- Introduction of a permanent capital floor.
- Constraints on internal models which vary from discontinuing the option to use internal models for certain asset classes to floors or supervisory estimates to be used in modelling risk parameters.

These reforms are mostly targeted at the large internationally active banks. Upon completion, regulators need to transpose the reforms in binding law.

Permanent capital floor

Much of the discussion, also increasingly in the public domain, focuses on the introduction of permanent capital output floors. This implies that the minimum regulatory capital requirement[12] for banks allowed to use internal models cannot be lower than a certain percentage of the regulatory capital requirement arising from applying the standardized approaches. **A compromise package including an aggregate RWA output floor of 75% was not approved by members of the Basel Committee by year-end 2016, which pushed the completion of the reforms to 2017.**

Banks and regulators from some jurisdictions expressed concerns that if such a floor would be effectively binding, then it may lead to significantly increased capital requirements, and could provide disincentives to using internal credit risk assessments and give room to regulatory arbitrage.[13]

Standardized approaches tend to be calibrated on global "average" credit risk perception, while also a margin of conservatism is added. Inherently loans with relatively higher risk will benefit from such approach, while loans with relatively lower risk will suffer from it. These effects should cancel each other out on a total level, but this may not be the case for those banks making loans with a significantly lower than average risk profile.

Constraints to internal models and withdrawal internal model option for some assets

> "Standardized approaches tend to be calibrated on global "average" credit risk perception, while also a margin of conservatism is added."

Next to the output floor, some of the other proposed internal model constraints are proposed. Such proposed constraints include withdrawal of the internal model option for portfolios such as low default portfolios and specialised lending. And where internal models continue to be allowed they will be subject to more restricted constraints such as parameter floors.

Low default portfolios bring modelling challenges as widely accepted statistical models which rely on historical default observations and the "law of large numbers" perform relatively poorly for such portfolios. History is not a good predictor for future losses.

Specialised lending[14] implies that the repayment of loans primarily depends on the income generated by the asset for which the borrower needs the loan rather than the credit quality of the borrower.

In general, the latest proposals on credit risk aim to increase the risk sensitivity of the standardized approach and to remove the option to fully use internal models. A recurring theme, similar to low default portfolios, is the availability of sufficient historical loan performance data to establish credible and reliable estimates of credit risk factors (mainly the probability of default).[15]

11. ECB (2017)
12. Ignoring capital requirements arising from the regulatory leverage ratio and TLAC requirements.
13. Financial Times (2016), Bloomberg (2016)
14. Specialised lending includes among others project finance, real estate, object finance and commodities finance. Some common practical examples of financing ships, aircrafts, infrastructure projects and lending to finance inventories of crops where farms do not have any other material assets.
15. Basel Committee on Banking Supervision (2001) (2016)

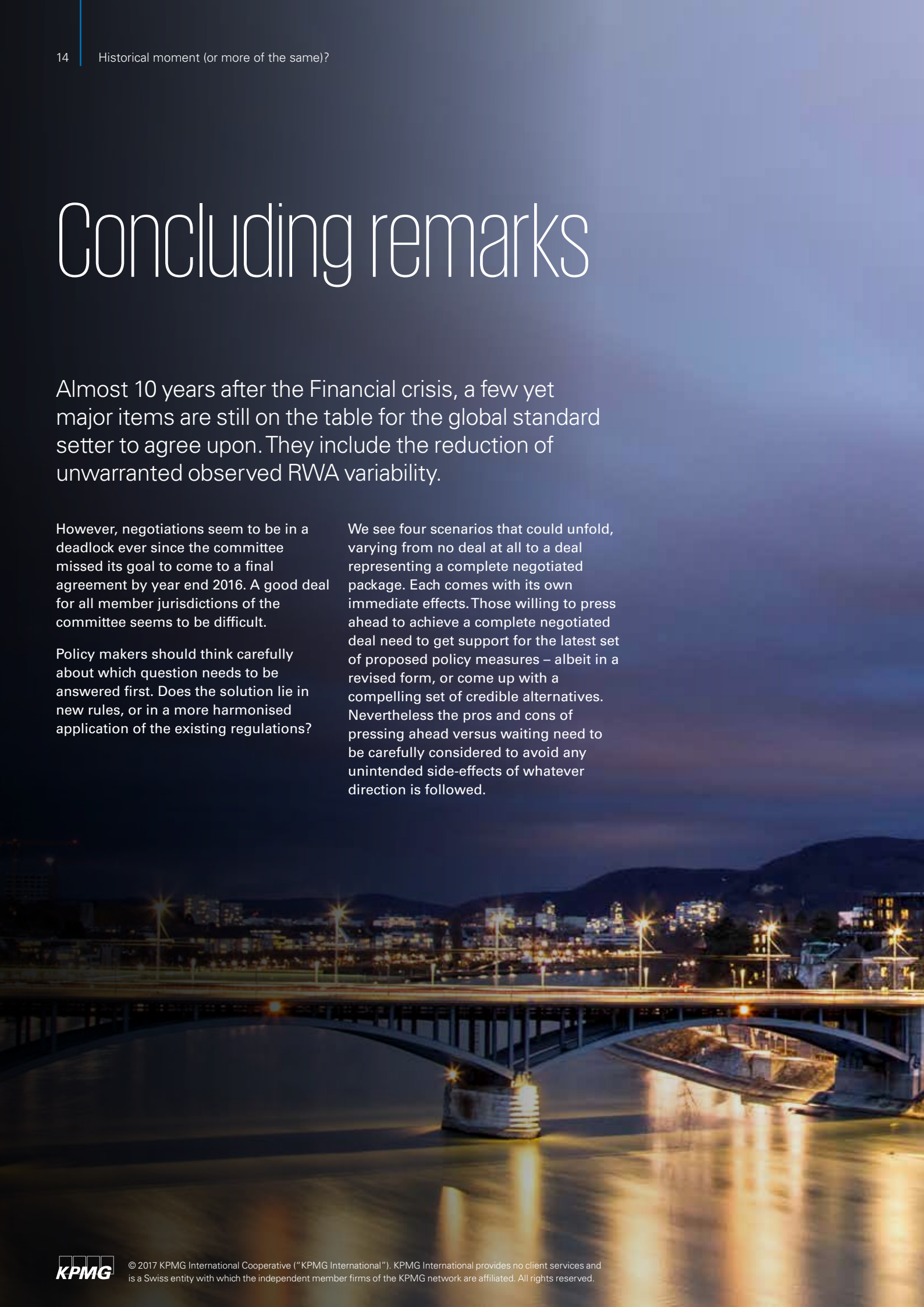
Concluding remarks

Almost 10 years after the Financial crisis, a few yet major items are still on the table for the global standard setter to agree upon. They include the reduction of unwarranted observed RWA variability.

However, negotiations seem to be in a deadlock ever since the committee missed its goal to come to a final agreement by year end 2016. A good deal for all member jurisdictions of the committee seems to be difficult.

Policy makers should think carefully about which question needs to be answered first. Does the solution lie in new rules, or in a more harmonised application of the existing regulations?

We see four scenarios that could unfold, varying from no deal at all to a deal representing a complete negotiated package. Each comes with its own immediate effects. Those willing to press ahead to achieve a complete negotiated deal need to get support for the latest set of proposed policy measures – albeit in a revised form, or come up with a compelling set of credible alternatives. Nevertheless the pros and cons of pressing ahead versus waiting need to be carefully considered to avoid any unintended side-effects of whatever direction is followed.



Appendices

A. Lack of confidence in models to estimate RWA?

Both the Basel Committee and the EBA in Europe generally believe that the internal models used to estimate RWA have proven their validity following the studies they have performed between 2012 and 2016, and suggest to maintaining the risk-sensitive capital ratios to some extent.[16]

Undue consequences of increasing complexity and sophistication

The use of the banks' own risk assessments in determining minimum capital requirements comes with perceived advantages and disadvantages.[17] Using own internal models albeit compliant with regulatory requirements would allow for regulatory and bank assessments of risk to be better aligned. It would have the potential to reduce incentives for regulatory arbitrage. However, the Basel Committee concluded in 2013 that as a side-effect, regulatory standards have come to embody the increasing complexity of banks' risk management models.

Greater use of advanced measurement techniques and customisation to accommodate a wide array of exposures and portfolios have added to the complexity. **The increase in sophistication and complexity rendered aspects of supervision more difficult and may have led to varying supervisory practices in approving the use of internal models.**

Similarly, comparability of capital outcomes across banks and over time became more difficult to assess due to the multitude of factors that could drive RWA variability and limits to how far disclosure can keep pace with i) increasing sophistication and complexity and ii) be well understood by all stakeholders.

Figure 4 – What is driving variability in RWA?

Variability in risk-weighted assets

Risk-based factors

- Relative share of different asset classes
- Asset composition within asset classes
- Product and customer mix
- Market and economic conditions
- Legal frameworks (bankruptcy laws, recovery processes, access to collateral, etc.)
- Business & risk management strategies

Desired differences in line with goal of Basel risk-based capital framework

Practice-based factors

Regulatory environment

- Differences in regulation and supervisory practices, and accounting standards

Methodological choices

- Differences in banks' methodological choices regarding risk rating, segmentation, conservatism, quantification, validation and interpretation of regulation

Desirability is ambiguous and studies have been inconclusive

Risk-based factors

First and perhaps most trivial, **differences which can be explained by risk-based factors** as shown in Figure 4 **can be generally accepted as desirable differences since they are in line with a risk-based framework. Most of the observed RWA variability between banks can be explained by such factors.** For example, the latest results from the EBA's benchmarking exercise on RWA variability for the main so-called High Default Portfolios based on data from 31 December 2015 suggest that more than 80% of observed variability can be explained by a few risk-based factors such as proportion of defaulted assets and portfolio-mix.[18] The remaining variability would be due to other risk-based and practice-based factors.

> "The use of the banks' own risk assessments in determining minimum capital requirements comes with perceived advantages and disadvantages."

Practice-based factors

Second, studies[19] recognise that **differences stemming from varying bank practices and regulatory environments significantly impact observed variability in RWA. These practice-based factors represent a diverse group of factors and their desirability is ambiguous.**

One example on varying practices is the classification of assets to exposure classes. Risk measurement approaches differ for each exposure class as each exposure class is seen as having distinct risk characteristics in regulation. Fundamentally, this boils down to a debate on what are sufficiently homogenous risk groups and how to reflect this in regulation.
The assignment to exposure classes and establishment of these classes are fundamental to any RWA outcome. Limited guidance may have driven varying market and supervisory practices. Available data tends to lack in granularity and uniformity to perform a conclusive attribution analysis for each single factor across all jurisdictions in which banks are allowed to use internal models to determine risk-based capital requirements.

Nevertheless, there seems to be consensus that practice-based factors can result to unwanted RWA variability between banks. Such factors may have a significant unintended impact on the banks' risk-sensitive capital ratios. **According to the Basel Committee, variances arising from such factors undermine confidence in risk-sensitive capital ratios.** Its policy measures aim to restore confidence in such ratios.[21]
In addition, the observed excessive variability led to a more fundamental discussion on model-based minimum regulatory capital requirements and the overall level of capital requirements.[22, 23]

How did the Basel capital framework develop over time and became increasingly complex up to the point unwanted RWA variability was considered too significant? The next section illustrates the evolution in Basel standards starting with the establishment of the Basel Committee in the 1970s.

16. European Banking Authority (2015), Basel Committee on Banking Supervision (2013)
17. Basel Committee on Banking Supervision (2013)
18. European Banking Authority (2017). The study represents a periodic supervisory benchmarking exercise on the application of internal models by banks for credit risk. Such exercises are performed for both Low Default and High Default Portfolios where low and high are relative to each other rather than implying an absolute statement on default levels of portfolios.
19. Refer to Basel Committee on Banking Supervision (2013) for an overview. Other more recent studies include Institute of International Finance (2014), European Banking Authority (2014, 2015), Basel Committee (2016), Oliver Wyman (2016)
20. Risk measurement approaches differ for each exposure class as each exposure class is seen as having distinct risk characteristics in regulation. Fundamentally, this boils down to a debate on what are sufficiently homogenous risk groups and how to reflect this in regulation.
The assignment to exposure classes and establishment of these classes are fundamental to any RWA outcome. We observe the discussion on exposure classes evolved into a more fundamental discussion on the number and nature of exposure classes to recognize in the regulatory capital framework.21. Basel Committee on Banking Supervision (2014)
21. Basel Committee on Banking Supervision (2014)
22. Haldane (2012), Behn, Haselmann and Vig (2016)
23. Oliver Wyman (2016)

B. Basel evolution: spur in risk sensitivity and complexity over time

To fully understand the continuing discussion on the reform package regarding capital standards, it is helpful to consider the historical development of banking regulation, its implementation and its impact on the global banking industry.

The reform package focuses primarily on the way banks should measure risk, i.e. the denominator of the capital ratio – the calculation of credit, market and operational risk exposures of a bank, using either standardized or internal model based approaches. Here, regulators have already finalized revised global frameworks for counterparty credit risk, market risk and interest rate risk.

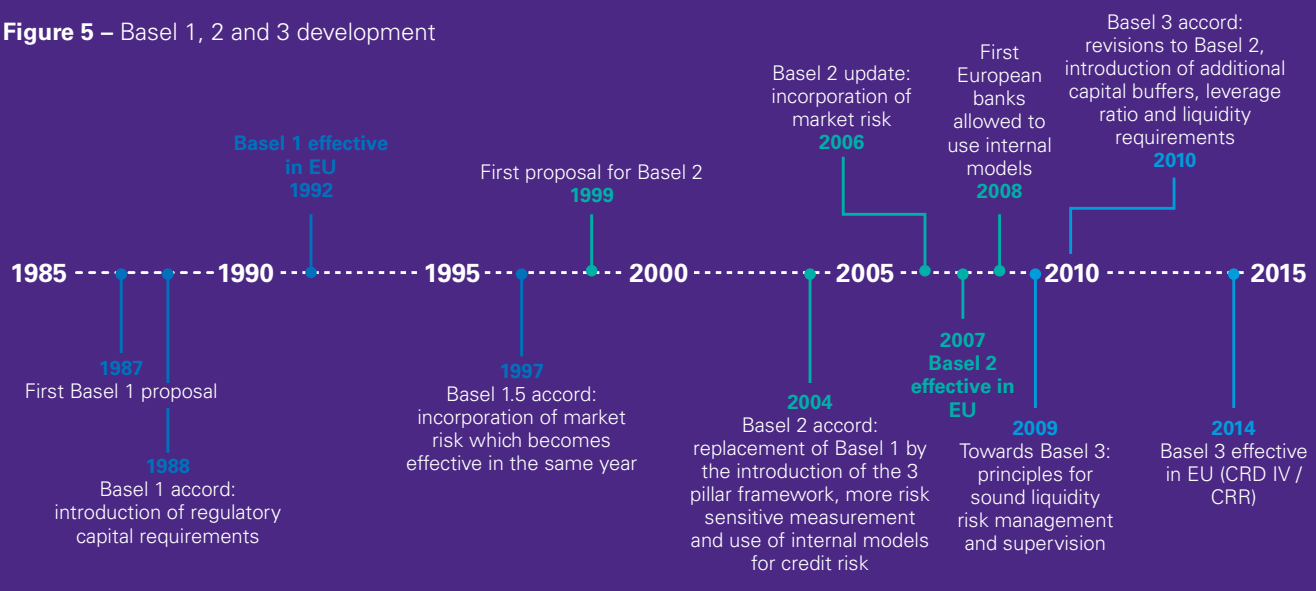
The final step is the completion of the long-awaited standards for credit and operational risk, and for the capital output floor. In this section we show the evolution of the Basel standards over time and focus on credit risk as this is typically the main financial risk for banks – e.g. 81% of RWA is driven by credit risk for EU banks (as of June 2016).

The beginning

The Basel Committee was established in 1974 by the central bank governors of the G-10 countries with the aim of enhancing financial stability. At the start, the focus was to enhance financial stability and improve the quality of banking supervision worldwide.

With the foundations for supervision of internationally active banks laid, the focus then shifted to capital adequacy in the 1980s. This was, among other reasons, driven by deteriorating capital ratios of the main international banks at a time of growing international risks (e.g. Latin debt crisis early 1980s).

Figure 5 – Basel 1, 2 and 3 development



The Basel Committee developed what is known today as the **Basel 1 framework**[24] to strengthen the stability of the international banking system and to remove a source of competitive inequality for internationally active banks (arising from differences in national capital requirements). This included:

- Minimum ratio of capital to risk-weighted assets of 8%.
- Standardized approach to appropriate risk-weighting of assets, which focuses on credit risk.

The Basel 1 accord was effective by the end of 1992. Subsequently Global policy makers then spent the next few years further developing the standards, which led to among others, the incorporation of market risk in 1997. **The original accord was always intended to evolve over time.**

The simplicity of Basel 1 had its draw-backs. Namely, it became scrutinised for insufficiently reflecting underlying risks and not properly addressing the financial innovation that had occurred in the 1990s.

Complete replacement of Basel 1

In June 1999, the Basel Committee issued its first proposals to replace the Basel 1 framework with a more risk-sensitive capital framework. The final version of this new framework was issued in 2004 and is now commonly known as **Basel 2**[25].

Basel 2 introduced the option for banks to use internal models instead of the standardized approaches to estimate credit risk and as such set the minimum capital requirements. It would allow increased use of the bank's own risk assessments. As such, Basel 2 represented a significant regulatory change aimed to promote the adoption of stronger risk management practices by the banking industry.

For example, a bank with a mortgage portfolio could, by applying for the option to use internal models, take risk factors into account which are not considered in the standardized approach, but are important drivers for the riskiness of the respective bank.[26]

The option to use internal models was however subject to a set of conditions, which included approval by the applicable supervisor, independent model validation and a so-called output capital floor requirement.[27]

Basel 2 became effective in Europe in 2007 and the first banks started to apply internal models as in January 2008. Note that the first US banks started to use internal models in calculating regulatory capital requirements at the beginning of the second quarter of 2014.[28]

Basel 2 introduced two additional pillars

Other revisions to the Basel 1 framework included the introduction of two additional pillars to the framework. The introduction of the three Pillars framework marked a milestone in international convergence of capital measurement and standards.

Besides the minimum requirements covered so far and now positioned in Pillar 1, the Basel Committee also came to a common understanding captured in Pillar 2 on how to supervise banks' capital positions and assess the risks that are not covered in the minimum requirements such as interest risk driven by non-trading activities.

The disclosure standards – being Pillar 3 – aim to reinforce the other pillars by providing the public and financial markets with sufficient information to factor in bank's risk in stock and debt valuations.

In general, this extended framework provides for a much wider set of policy options to address issues in the observed RWA variability.

24. Basel Committee on Banking Supervision (1988)
25. Basel Committee on Banking Supervision (2004)
26. Such factors could include unemployment rates, movements in house prices, marital status, region, etc.
27. To prevent banks' internal risk weights from reducing risk weighted assets too much and too quickly, lower limits were set for how much capital could be reduced. These limits relate to the Basel 1 framework. Although originally intended to disappear by 2009 most European countries kept them in place. A current floor limit of 80% applies, i.e. following the Basel standards the floor is binding on a bank if its own risk-weighted assets based on internal models are lower than 80% of RWA as measured by applying the Basel 1 standardized approach. Yet, we note that the EU implemented a more lenient definition of the floor.
28. Board of Governors of the Federal Reserve System and Office of the Comptroller (2014)

Strengthening the Basel 2 framework while keeping the fundamentals intact

Even before Lehman Brothers collapsed in September 2008, the need for a strengthening of the Basel 2 framework had become apparent. The Basel Committee issued a first set of principles for sound liquidity risk management in September 2008. These principles were issued to address some of the identified liquidity risk management challenges published by the committee earlier in February 2008. The collapse of Lehman Brothers accelerated the need and efforts by banking supervisors to remediate the gaps in the Basel 2 framework.

A complete and fundamental overhaul of the Basel 2 framework (as shown in Figure 7) had the potential to take years. Remember, the time between the first proposal and final Basel 2 standard was about six years. The Basel Committee took an iterative approach and issued various reforms over time, beginning with the 2009 reform regarding the treatment of certain complex securitization positions, off-balance sheet vehicles and trading book exposures. This set of 2009 reforms is referred to as Basel 2.5.

Subsequently, the next set of reforms was finalized in 2010, which together are form **Basel 3**:[29]

- Introduction of additional capital buffers banks need to hold and increase the quality of capital.
- Introduction of a leverage ratio requirement, which represents a minimum amount of capital to be held relative to a bank's size regardless of risk weighting. It is aimed to serve as a back-stop.
- Introduction of minimum liquidity requirements based on two new risk metrics.
- Additional proposals specifically targeted at systemically important banks (e.g. additional capital buffers).

Basel 3 in 2010 did not encompass significant reforms in measuring risk for minimum capital requirements. This is shown in Figure 6 which displays in a very simplified manner the essence of the reforms over time on capital requirements (relevant to credit risk).

The road ahead: finalising the post-crisis reform to capital standards

The reform package of Basel 3 is still phasing-in. The new risk metrics are subject to (re-)calibration and review in the coming years – this fits the original intentions of the policy makers behind the Basel 1 Accord, i.e. to have a framework which would continuously evolve to ensure stability of the international banking system.

Following the publication of Basel 3 standards in 2010, policy makers turned their attention to the framework's complexity and the comparability of risk-sensitive capital ratios. Complexity was largely driven by a desire to have capital requirements reflecting the underlying risks taken by banks.

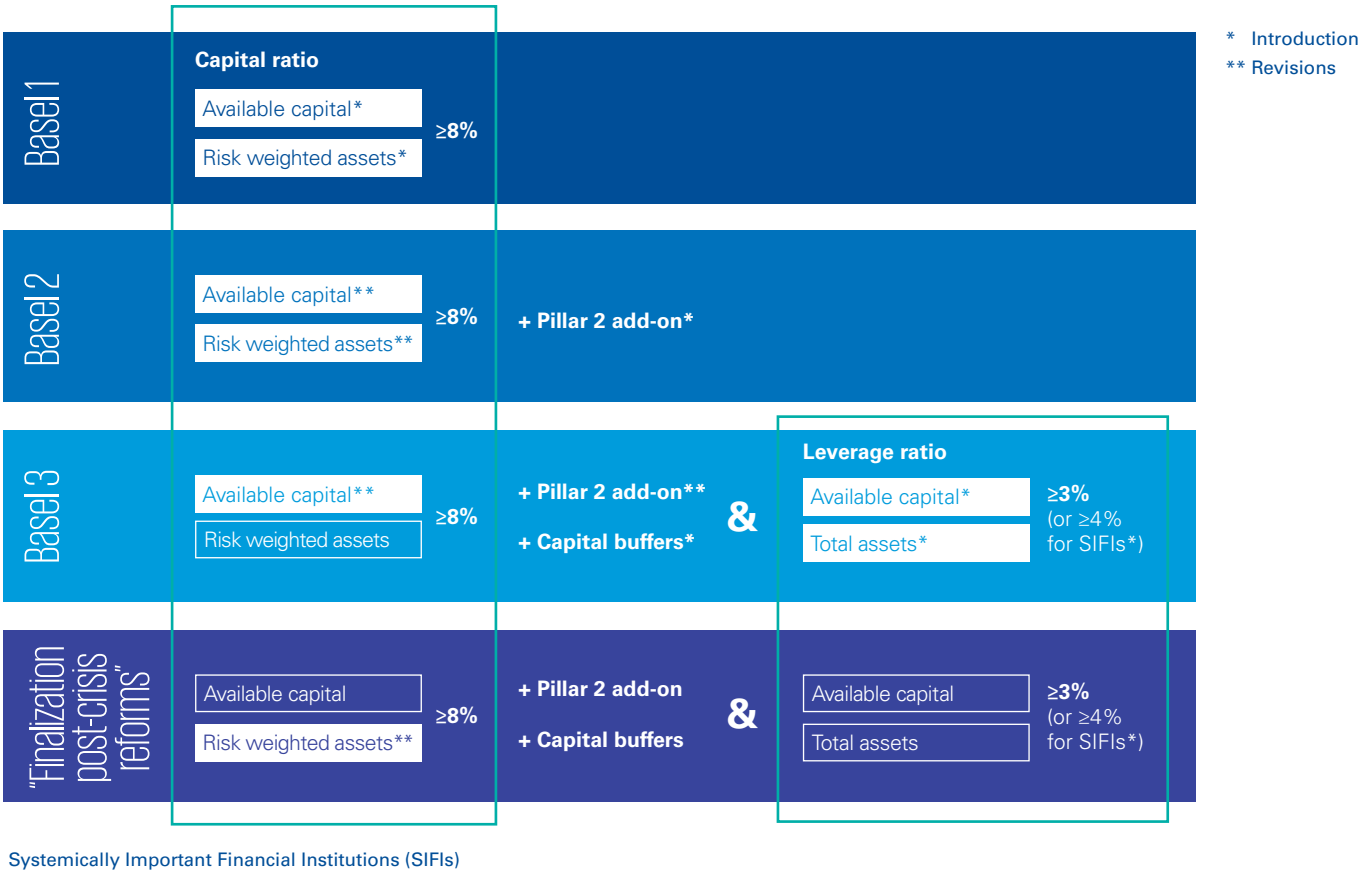
However, measuring risks is far from straightforward, as the past (crises) has proven. According to the Basel Committee, the pursuit of increased risk sensitivity has significantly increased the complexity of the calculation methodology of RWA and found it more difficult to compare capital ratios across banks and countries.

The Basel Committee concluded that a rebalancing of the trade-offs made on complexity (risk sensitivity) and comparability in the framework was required. A short initial review of the framework was started in 2012, which would mark the beginning of working towards revised standards on risk measurement which KPMG has been calling 'Basel 4' since 2013.

> "The reform package of Basel 3 is still phasing-in. The new risk metrics are subject to (re)-calibration and review in the coming years"

29. Basel Committee on Banking Supervision (2010)

Figure 6 – Essence of Basel reforms over time on capital requirements (relevant to credit risk)



C. Differences in banking sectors and local implementation of capital standards

Differences in banking sectors and regulatory standards across countries typically complicate the work of global standard setters.

The role of bank financing

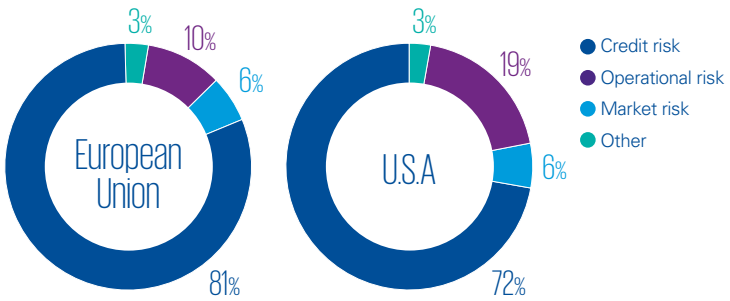
Bank financing is considerably more important for the European economy compared to the US. In the Euro area, domestic banking sector assets amounted to ~270% of GDP whereas the corresponding figure for the US is ~72% in 2013.[30]

According to the ECB, the differences in size (and structure) can be attributed to:

- a relatively greater role of bank versus capital market-based financial intermediation in the Euro area
- a relatively higher importance of the "shadow banking system" in the US. (Low-risk) mortgage assets are kept at different locations in the financial systems of US and Europe. Mortgages remain predominantly on banks' balance sheets in Europe, but in the US, they are largely passed on to non-banks such as Fannie Mae and Freddie Mac.
- differences in the accounting standards in use in the United States and the EU.[31]

Macro-economic effects of reforms in capital standards may be significantly different for the EU and US as the role of the banking sector differs between the two regions. Any increases in requirements would merit additional research in the EU to assess the impact on the real economy.

Figure 7 – RWA distribution and use of internal models in EU and US as of 30 June 2016



No. banks	European Union	U.S.A
to which Basel standards apply	>3,000*	16
and of which use internal models	>160	10

* Limited to number of banks in scope of EU's SSM
Source: BCBS, ECB, EBA, FFIEC, KPMG analysis

30. ECB (2013)
31. Examples include different treatment of derivatives under US GAAP and IFRS (ECB, 2013) and reliance on accounting valuation such that capital ratios of US banks may be higher than if Basel standards were applied (BCBS, 2014).

Relevance of risk-based capital requirements

According to Fitch[32] risk-based capital requirements are less relevant for banks in the US than elsewhere, such as in the EU. This is, for instance, seen by the number of banks allowed to use internal models in the US compared to the EU (Figure 7). Only the large US banks can, if allowed, use internal models whereas in the EU both large and small banks can, if allowed, use such models. As such, **reforms aimed to constraint internal models are likely to affect EU banks more than US ones.**

Looking in more detail at the measurement approaches for credit risk, see Figure 7, we see that roughly two thirds of credit RWA is determined using internal models in the EU (as of 31 December 2015). Figure 8 shows that residential mortgages represent the largest asset class to those banks using internal models. As such, the effects of any binding constraints to internal models resulting into higher capital requirements require careful analysis for second-order effects on mortgage lending considering for example risk-taking incentives, pass through of higher required capital in pricing and re-location of mortgage debt within the financial system.

Inconsistent national implementation of Basel standards

The Basel Committee's work on assessing regulatory consistency across the US and EU[33] shows some striking differences in the context of using internal models to determine RWA and minimum capital requirements. Differences in the adaptation of Basel capital standards in the US and the EU may help to explain the different positions taken by policy makers from these jurisdictions. US regulators have supported constraints such as a permanent capital output floor while European authorities have been opposing constraints, which would lower risk sensitivity of the framework too much.[34]

US regulators adopted, as part of its Basel 2 implementation, a permanent 100% output floor based on the US version of standardized approaches to credit risk.[35] This implies that minimum capital requirements already cannot fall below the capital requirements stemming from the standardized approaches, despite a bank's internal credit risk assessment (using own models) showing overall credit risk is lower.

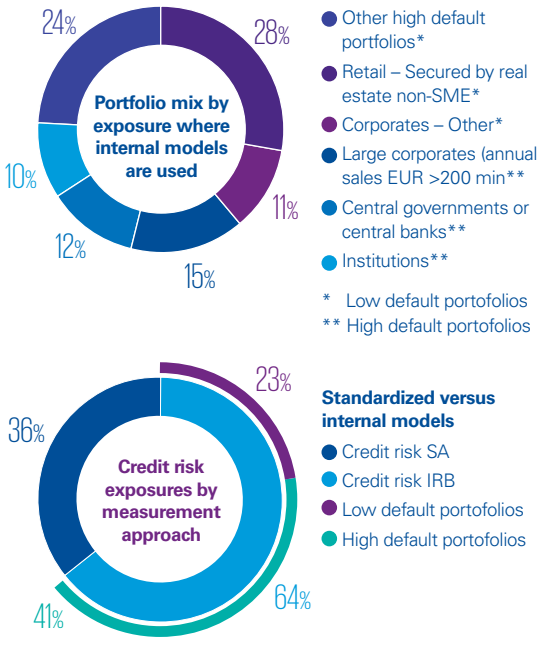
Such a strict output floor does not apply in the EU. Rather a transitional floor based on Basel 1 was introduced upon adopting Basel 2.[36]

The US version of the standardized approaches is designed to be more conservative than the Basel approach. This adds to the stringency of the aforementioned output floor has on US banks allowed to use internal models for determining capital requirements. The European version of the standardized approaches were not designed to be more conservative on a framework to framework basis.

The scope of application regarding the Basel capital standards is not confined to large internationally active banks in Europe, but extended to apply to all other banks as well. The scope of Basel standards is officially limited to internationally active banks and as such designed to be suitable to those banks. In the US, the concept of "core banks" is used to differentiate between banks required to adopt the advanced Basel standards and banks that can opt-in. All banks in the US remain subject to the general US risk-based capital rules. The Basel Committee concluded that the US scope of application is compliant with the committee's intended scope.

These differences between US and EU in adopting Basel capital standards result in different starting positions for the negotiation of revised standards on risk measurement. Proposals curbing internal model usage for regulatory minimum capital requirements can therefore reasonably be expected to have a lesser impact on the US and they will have a greater willingness to accept these plans when compared to the EU.

Figure 8 – Internal models usage by European banks in determining RWA for credit risk



Source: EBA transparency exercise 2016, KPMG analysis

32. Fitch (2017)
33. Basel Committee on Banking Supervision (2014) Bloomberg (2017)
34. Bloomberg (2017)
35. Note that the US version for example excludes CVA and operational risk.
36. Supervisors have discretion to apply a floor on the Basel 1Basel 2 standardized approaches rather than Basel 1 or to waive the floor entirely.

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