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Managing Director, Regulatory Affairs



October 6, 2015

The Rt. Hon. the Lord Hill of Oareford, CBE
European Commission
Rue de la Loi 200
1040 Brussels
Belgium

Re: Consultation Paper on the Possible Impact of the CRR and CRD IV on Bank Financing of the Economy

Dear Commissioner Hill:

The Institute of International Finance (IIF) appreciates the opportunity to comment on the European Commission Directorate General FISMA's 'Consultation paper on the possible impact of the CRR and CRD IV on bank financing of the economy'.

The IIF shares the European Commission's increased focus on this important area, and welcomes the analysis of current issues and practices as an important and worthwhile initiative. We feel that this is a very useful exercise for firms and supervisors alike, and we commend the Commission's initiative.

As the IIF recently outlined in a letter to the Basel Committee on Banking Supervision's Task Force on Coherence and Calibration, there are numerous examples where new regulations have generated compounding or contradictory incentives and outcomes.¹ The IIF continues to support the Basel III reforms (implemented in Europe in the form of CRR and CRD IV) and recognizes that there are various consequences that were fully intended by regulators – but equally there are also some unintended consequences and cases where regulations' cumulative effects, as well as responses to the incentives they create, have been greater than anticipated. It is therefore most timely that the Commission has initiated this consultation, and we hope this could set a pattern for similar reviews in other areas.

The IIF represents approximately 500 financial institutions, including regulated banks and firms from other sectors (such as insurers and asset managers), among them both European firms and firms domiciled and regulated elsewhere that maintain active businesses in the European economy. As such, we seek to bring a perspective to this consultation that is both (i) global and (ii) extends beyond banking, noting that the effects of banking regulation on the wider economy can be magnified by the dynamics in other sectors.

Accordingly, our comments include topics in global banking regulation, highlighting issues that will likely come for EU discussion in the near-term, both for potential inclusion in CRR-CRD, and where EU officials

¹ IIF, *Letter to BCBS Task Force on Coherence and Calibration*, June 17, 2015, available from <https://www.iif.com/publication/regulatory-comment-letter/iif-letter-bcbs-taskforce-coherence-and-calibration>

participate in global standard-setter fora. We also note areas of insurance regulation where similar challenges exist, which can have compounding impacts on the economy, in those specific areas where both the banking and insurance sectors are unduly constrained.

We commenced developing our comments upon the publication of the Consultation paper in July, but we also note that the Directorate General FISMA subsequently published another paper 'Call for Evidence: EU Regulatory Framework for Financial Services' on September 30, 2015. In this context, some of our comments may be considered fore-runners to the topics for exploration in that latter paper, and where we identify areas of the IIF's preliminary research in this paper, we would welcome the opportunity to pursue these further with the Commission.

Concurrently, we have sought to concentrate our response to this Consultation on only those issues where we feel we can contribute some additive, constructive input. We hope that this is both useful for the Commission, as well as complementary to the views that will be highlighted by Europe-specific industry associations.

We have structured these comments in two Sections:

- Firstly, to highlight four major themes that we feel warrant further consideration by the Commission and regulatory bodies. These relate to how CRR and CRD IV are applied and implemented, both currently and in the future.
- Secondly, to illustrate three areas where the IIF has undertaken some preliminary research and analysis in support of these themes; these each tie to a subset of the specific questions posed in the Consultation.

We will elaborate further on each theme in Section 1 of this response. We will then set out the key findings from our research and analysis in Section 2.

1. Major themes for further consideration

In assessing the impacts of CRR and CRD IV, the four major themes we have identified for consideration are as follows:

- (i) *Looking forward as well as back*: in assessing regulatory impacts, it is necessary to consider upcoming regulations as well as those that have already been fully implemented, noting that banks typically need to plan and adjust their business strategies, plans and operations prior to the completed implementation of a regulatory change; this is especially pertinent in the context of the current Basel Committee debate on future methodologies for the calculation of risk-weighted assets.
- (ii) *Calibration and layered conservatism*: we recognize that the objective of system stability warrants a degree of conservatism, however, this principle needs to be considered holistically; there are unfortunately cases where various conservative layers are each applied through the process, compounding the conservatism of outcomes.
- (iii) *Risk-sensitivity*: proposals to shift the emphasis of the bank capital framework away from the risk-based approach in favor of "simplified" approaches (either directly or indirectly through additional disclosure requirements) would create a significant detriment to not only the accuracy of determining the risks that banks carry (which capital requirements should be based on), but also by making banks' key performance measures and strategic decision-making less sensitive to their underlying risk, with potential adverse behavioral and market outcomes.
- (iv) *Level playing field*: discrepancies between national regulations and supervisory interpretations create competitive distortions; this could be improved with greater limitations on the extent of

national discretion in local implementations of the global Basel framework, to encourage fuller and fairer competition, both for European firms and for non-European firms that are active in Europe's economy, and more international supervisory coordination. Consistency with Basel and other international standards should remain a primary goal of the Commission's regulatory work, although we believe the Commission should be prepared to challenge Basel if issues are identified where the international standards could give rise to unintended consequences.

Each of these four themes ultimately influences the cost and availability of credit, and the pricing of bank services in support of the real economy. Moreover, the four themes can be expected to have a cumulative impact, each compounding the others' underlying economic impact.

i. Looking forward as well as back

In assessing the impacts of regulation, it is important to consider upcoming regulations as well as those that have already been fully implemented. Not only will banks typically plan and adjust their businesses prior to the completed implementation of a regulatory change, but it is essential to recognize that many pieces of the regulatory capital framework are still being developed.

Areas of potential change in the regulatory framework currently under review at the BCBS or FSB include:

- Total Loss Absorbing Capacity (TLAC)
- Revisions to the Standardized approach for Credit Risk
- Future of the Internal Ratings Based approach for Credit Risk
- Proposed Capital Floors based on the Standardized Approaches
- Review of Capital Treatments for Operational Risk, both the Standardized Approach and the Advanced Measurement Approach (AMA)
- Proposed Capital Treatments for Interest Rate Risk in the Banking Book (IRRBB)
- Fundamental Review of the Trading Book (FRTB)
- Review of the calibration of the Leverage Ratio
- Revisions to the Credit Valuation Adjustment (CVA) risk framework

These, in addition to other reforms at the EU level such as MiFID II, stand to have considerable impacts in the coming years if they are adopted as currently drafted. These also come on top of other reforms that have been finalized but not yet fully implemented, including the Liquidity Coverage Ratio (LCR), the Net Stable Funding Ratio (NSFR) and the new Standardized Approach for measuring Counterparty Credit Risk exposures.

The potential revisions in credit risk (including both the internal model approach and the Standardized Approach, as well as their interaction with Capital Floors and the Leverage Ratio) are especially pertinent, given the role of lending as a core function of banking that directly affects the real economy. These also stand to have a profound impact on risk-sensitivity (see Theme 3) and on the relative capital intensity of different asset classes (discussed later in this paper in Research topic 1).

Concurrently, a recent PwC study on market liquidity (commissioned by the IIF and GFMA) identified that while some regulations have already impacted market depth, breadth and immediacy, the greater threat to liquidity comes from other looming regulations that are yet to be finalized, including FRTB and MiFID II.² While the PwC study found that the lack of liquidity in secondary markets is yet to transmit into the primary markets for corporate issuance, this remains a legitimate concern for the availability of corporates to access bond market finance in the future, such as envisaged under the EU Capital Markets Union initiative, and one that warrants greater investigation before these additional regulatory initiatives are pursued.

² PwC, *Global financial markets liquidity study*, August 2015

Furthermore, there is the potential for the suite of proposed new reforms to have compounding (or cumulative impacts), especially if they are not appropriately sequenced. In order to avoid unintended consequences or conflicting incentives, the interaction between various new and existing components and pillars of the final capital framework should be carefully considered, in order to create a well-balanced final outcome.

ii. Calibration and layered conservatism

Although conservatism is a key building block for system stability by functioning as a layer of prudence for fundamental (Knightian³) uncertainty in finance, banks are facing conservatism from a number of competing and overlapping approaches, including buffers, within internal models, liquidity and accounting constraints and other factors.

Banks are subject to multiple layers of capital charges and surcharges on both international and domestic levels: Basel requires a 4.5% minimum core equity tier one capital; a minimum of 8% total capital, liquidity standards on LCR and NSFR, and other local requirements. Furthermore, GSIBs (and often DSIBs) are subject to additional requirements of capital surcharges and TLAC, in addition to the Pillar 2 add-ons.

In addition, the initial position in most models is one of conservatism: model parameters are set to be conservative as margins of prudence within models and RWA calculations are generally added via normal risk management practices; and this conservatism is often reinforced through the supervisory approval process. This, on top of the conservatism already built into Basel II and III, should be recognized when buffers are calibrated generally or assessed for particular firms.

While accounting provisioning is based upon the principle of neutrality (in theory free from any bias or conservatism) regulators should pay careful attention on a holistic basis to the implications on banks' capital adequacy of IFRS 9 provisioning. Under IFRS 9, Hans Hoogevorst (the chairman of the IASB) has estimated credit loss provisions will increase by 35% in the impairment model applied to banks.⁴

The potential future developments in Bank Structural Reform (Vickers, Liikanen, Volcker) also warrant consideration. While the impacts of such initiatives are not fully known, these are intended at least in part to achieve some of the same goals as capital regulation and the new requirements in recovery and resolution planning, such as MREL, TLAC and resolvability assessments.

The combination of these measures creates multiple layers of conservatism, the cumulative impact of which should be carefully analyzed and understood. Meanwhile, the incremental value of layered conservatism should be considered holistically together with other methods such as stress testing. Beyond the compliance costs and confusion of this proliferation of requirements there remains also the potential double-counting of risks and to an overly cautious framework that unduly limits European banks' financing capacity.

iii. Risk sensitivity

In the current international regulatory debate, it is concerning that the value of risk-sensitivity has been discounted. Where some regulators and commentators advocate "simplified" approaches for setting banks' capital requirements, this would come at a significant detriment to not only the accuracy of determining the risks that banks carry, but would also make banks' key performance measures and

³ Capital frameworks apply a capital weight to a specific type of risk in an asset based on a regulator's understanding of that risk. However, Knightian uncertainty refers to events that are immeasurable and impossible to calculate, but which may periodically materialize in financial markets. Prudential frameworks typically incorporate some conservatism to account for this uncertainty.

⁴ Hans Hoogevorst, speech 'Preparing for the expected: implementing IFRS 9', September 15, 2015

strategic decision-making less sensitive to their underlying risk. Some of the current proposals stand to dramatically alter the relationship between risk and capital, with implications for the cost and availability of credit.

Capital measures are of critical importance not only at the "top-of-house" for demonstrating capital adequacy, but for the underlying activities within each bank – in strategic planning, pricing, portfolio construction and management, as well as in performance management and remuneration. Having a proper assessment of risk, and embedding this into banks' key internal measures, is critical to fostering the desired risk-conscious culture within institutions and their staff.

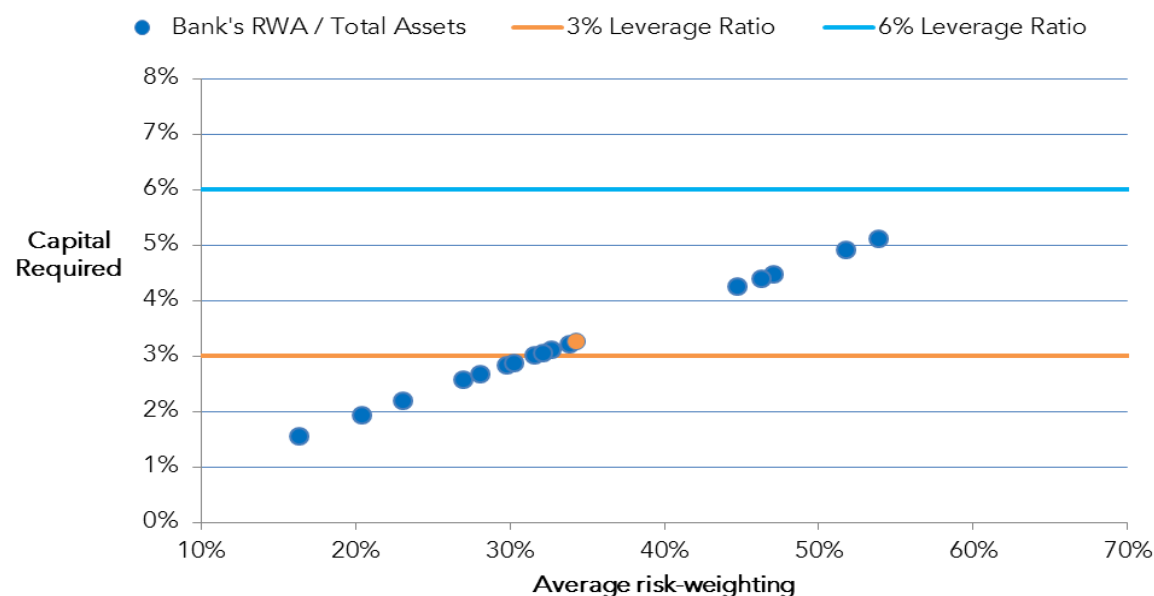
Where multiple sets of capital measures intersect, banks face a scenario of constrained optimization, under which an efficient and rational bank will optimize to the scarcest resource. Banks' strategies, operations and behaviors (how they price deals, develop new products and services, and assess and reward staff) will be shaped by which capital measure is the prevalent one – the binding constraint. Moreover, as the emergence of a measure as the binding one becomes clear, banks will typically manage to that constraint in advance, with impacts for the price and availability of credit.

The Leverage Ratio has been consistently described by the Basel Committee as a "supplementary" or "backstop" measure as part of the Basel III framework⁵. However, if this is calibrated at a higher level, it will cease to be a backstop, and instead override the risk-based framework.

Using a highly simplified basis (banks' reported RWA and Total Assets), Figure 1 shows a plot of the average risk-weights of the 16 European GSIBs (14 domiciled in the European Union and 2 in Switzerland), with different levels of Leverage Ratio overlaid.

Figure 1: European GSIBs Average risk-weights relative to Total Assets⁶:

The average is shown in orange, at 34.3%



If a Standardized-based floor or Leverage Ratio is the predominant capital measure, this may make portfolios which are fundamentally low risk in nature economically unviable. The regulated sector could

⁵ Basel Committee on Banking Supervision, *Basel III: A global regulatory framework for more resilient banks and banking systems*, December 2010 and June 2011.

⁶ Please see Appendix D for details of calculation assumptions

over-price credit for well-rated counterparties, and bank lending could be constrained in the case of investment-grade credit portfolios. This not only weakens the overall average credit quality of the regulated system, but also drives stronger borrowers to seek their funding elsewhere, if other sectors are in a position to absorb that.

Furthermore, flat or mis-calibrated measures can generate economic and behavioral mis-incentives, in further distorting the allocation of capital throughout the economy, as described in the IIF's recent paper 'Risk and Capital: the essential nexus'.⁷ This is in addition to the increased systemic risk if all banks were to apply the same, centralized set of risk measures.

If calibrated at appropriate levels, measures such as the Leverage Ratio and capital floor can constrain outliers with divergent modeling assumptions or concentrated portfolios – but if calibrated too high, they can end up over-riding the risk-based approach for all. It is important that regulators and industry invest the time to thoroughly explore these issues, and get the final design and calibration right.

In ensuring that capital measures are appropriately designed and calibrated, the banking industry and supervisors must collectively take up the challenge to improve models and ensure risk-sensitivity is preserved and that risk is further embedded as the basis on which banks price credit and make strategic decisions, and individual bankers are remunerated. Concerns about comparability can be addressed by improving banks' disclosures.

iv. Level playing field

As well as the structure and detail of banking regulations, it is critical that these are applied on a consistent basis. This consistency is important both within European banking (i.e. how CRR and CRD IV are applied) and beyond (where disparities may exist relative to other sectors or other regions and jurisdictions).

Discrepancies between national regulations and supervisory interpretations can create competitive distortions, potentially reducing the number of competitors. The availability and price of credit (as well as economic efficiency) is enhanced by having more competitors in the market-place, and it is counter-productive where regulatory discrepancies serve to diminish competition.

Fuller and fairer competition should be encouraged, both for European firms and for non-European firms that are active participants in Europe's economy. Greater consistency would help improve efficiency in the global economy and make Europe more attractive for inward investment, as well as contributing to global financial stability.

While there can be cases where there is a justifiable need to cater to national specificities, this should be balanced against the competitive and consistent value of constraining the levels of national discretion held by individual regulators or supervisory interpretation, and of pursuing greater commonality in the application of Pillar 2.

Consequently, where there are specific issues within European Union members that may warrant alternative regulatory treatments, we urge the Commission to pursue such issues with international bodies, such as the BCBS, the FSB, IOSCO, the IASB, and (in the case of insurance) the IAIS.

Concurrently, we also note that there is an emerging debate in some European countries about the amount of divergence in risk-weights between banks that are using the Standardized and Advanced IRB

⁷ IIF, *Risk and Capital: the essential nexus*, September 2015, available from <https://www.iif.com/publication/regulatory-report/risk-and-capital-essential-nexus>.

methods, in particular for mortgage lending. We welcome this increased focus and reiterate our support for level playing fields, and advocate a holistic consideration of factors that impact competition.

In this context, a holistic assessment warrants that the competitive implications of the raw risk-weight values need to be considered alongside other factors, including:

- Investment in systems, processes and governance to achieve Advanced accreditation
- Operational and compliance costs in maintaining Advanced accreditation, and in seeking regulatory approval and implementing enhancements to models
- Higher Credit Conversion Factors (CCFs) for undrawn balances
- Higher Domestic Systemically Important Bank (D-SIB) surcharges often incurred by Advanced IRB banks
- Differences in portfolio quality, noting that more sophisticated risk management and risk modelling capabilities should lead to higher-quality lending portfolios
- Increased portfolio diversification, more common amongst Advanced IRB banks which tend to be more diversified

2. Preliminary Research Conclusions

In support of the four themes described above, the IIF has undertaken some preliminary research. We would welcome the opportunity to expand and deepen this analysis together with Commission and European Union regulators.

We have conducted this in three main areas, each directly relating to some of the specific questions posed in the Consultation document:

- i. Risk and capital distortions: proposed capital regulations create distortions between particular lending products and borrowers, in particular punishing lower risk lending, for example trade finance
- ii. Cost of capital: current levels of cost and returns call into question the long-term sustainability of the industry
- iii. Infrastructure: prevailing sets of regulation in both banking and insurance serve to overstate the underlying risk, especially for stronger assets such as essential utilities and government-backed projects.

A brief summary of the conclusions we have drawn from each of these research areas is set out below. For some further expanded research on these topics, please see Appendices A, B & C respectively.

i. Risk and capital distortions

With reference to questions 2 & 6 in the Consultation

The current Basel Committee debate on future methodologies for risk-weighted capital (capital floors, new standardized approach, calibration of leverage ratio) stands to have a far-reaching impact on the shape of banks' balance sheets and the forms (and cost) under which credit is provided.

In this context, there is an important distinction between:

- a) the initiatives introduced since the crisis (as part of Basel III, and implemented in CRR and CRD IV) to increase banks' required capital levels, and
- b) the initiatives currently being considered in the debate on proposed floors, Leverage Ratio calibration and future use of internal models.

Whereas the Basel III requirements for increased capital impacted across all bank assets, improving system stability while being broadly neutral across business segments, the suite of proposed additional changes could serve to dramatically overstate risk for strong credits, such that banks may be deterred from lending to that segment, or have to seek to charge an economic premium in order to achieve a sufficient return for their shareholders.

Figure 2 represents some scenarios for a 5-year €1 million loan, in which the 'base case' under the Advanced IRB Approach is compared to the proposed new Standardized-based Floor and a Leverage Ratio constraint, to represent the additional interest margin that a bank would need to earn in order to offset the increased capital requirement and maintain Return on Equity (ROE) levels.

Figure 2: Pricing and Returns Scenarios for a large corporate borrower, indicatively assumed equivalent to a BBB rated credit⁸

| | | Advanced IRB Approach | Proposed Standardized Approach & Floor | Leverage Ratio |
|--|-----|-----------------------|--|----------------|
| Risk variables | EAD | €1,000,000 | €1,000,000 | €1,000,000 |
| | PD | 0.25% | 0.25% | 0.25% |
| | LGD | 50% | 50% | 50% |
| Net risk-weight ⁹ | | 48.7% | 56.0% | 100.0% |
| Market Spread ¹⁰ | | 180bp | 180bp | 180bp |
| ROE | | 12.0% | 10.5% | 5.9% |
| Additional interest margin required to meet a 12% ROE hurdle | | 0bp | 25bp | 107bp |

The scenario for the Standardized Approach is even more accentuated for SME or smaller corporate borrowers. If the borrower in question has annual revenue of between €5 million and €50 million (as opposed to the large corporate assumption of greater than €1 billion), then the net risk-weight for the Standardized Approach would be 80% (a 100% risk-weight extended at an 80% floor). In such a case, the incremental spread required to achieve an ROE of 12.0% under the Standardized Floor would be an additional 53bp.

Further details of these distortions, including impacts for Trade Finance and fixed income, are described in Appendix A.

ii. Cost of capital

With reference to question 5 in the Consultation

In order to form the full picture of the sustainability of banks' businesses, cost of capital must be considered alongside the industry's ROE. Current levels of cost and returns call this sustainability into question, as firms will eventually have to adjust pricing of services to the real economy, which may result in end-borrowers seeing an increase in their cost of credit.

Figure 3 shows that the gap between Cost of Equity (COE) and ROE has not improved significantly through the post-crisis recovery, with ROE levels that remain insufficient to cover banks' COE. This trend has been taking place concurrently to rising capital constraints in Europe, including leverage¹¹.

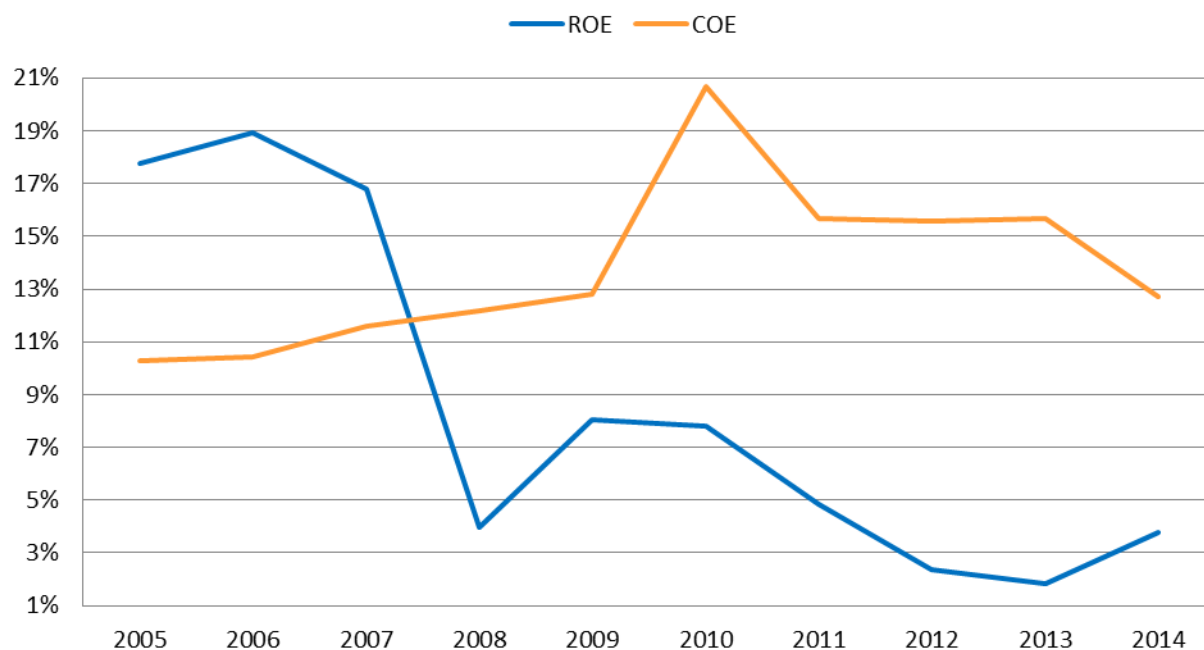
⁸ See Appendix D for more details of calculation assumptions.

⁹ Note that for the IRB approach, the risk-weight will commonly reduce as the asset trends closer to maturity; the value shown here is the average over the life of the loan, but for IRB, it would have been 71.2% at the point of the loan's commencement. Similarly, the prevailing Standardized risk-weight would be 70%, which has been extended here on the assumption of an 80% Capital Floor.

¹⁰ Yield earned net of funding costs

¹¹ More details on the link to leverage are provided in Appendix B.

Figure 3: Comparison of ROE and COE for all EU GSIBs¹²



As seen in Figure 3, EU GSIBs' profitability continues to be depressed with a simple average ROE of 3.8% at the end of 2014. The trend shows slow improvement with the industry returning to profitability, however, levels continue to be significantly lower than pre-crisis levels.

The trends in both ROE and in COE coincide with findings provided by the EBA in their recent *Risk Assessment Report* (June 2015), in which the EBA also concluded that ROE remains insufficient to cover the COE for 80% of EU listed banks.¹³

Further comparisons, both in terms of the level of banks' capitalization and by geography, are provided in Appendix B.

In this context, it is also worth revisiting empirical evidence on the applicability of the Modigliani-Miller Theorem (M&M) proposition to the banking sector. In particular, it is noted that deposits account for a large portion of banks' funding bases, and that these are relatively stable, exhibiting a low elasticity to a bank's level of leverage. The implication is that a reduction in leverage is not passed on into a reduction of the cost of debt.

Furthermore, there is also a notion that investors will accept a lower ROE on the basis that banks are "safer." However, in the *EY 2014 Risk Management Study*, 65% of respondents indicated that investors are pushing for increases in ROE.¹⁴ Furthermore, the *EBA Report* indicates that market analysts believe that shadow banking is one of the trends impacting the EU banking sector and banks' business models. The tightening of banks' regulations is a factor that in combination with the search for yield may be pushing traditional banking activities to other sectors.

¹² A detailed explanation on the figures used is presented in Appendix B.

¹³ For more details on the EBA study, please refer to Appendix B.

¹⁴ The publication of the EY 2015 study will take place after this consultation, however, EY have indicated that the trend described here continues in the 2015 report.

iii. Infrastructure

With reference to questions 10, 11 & 12 in the Consultation

Capital requirements for infrastructure investments under CRR follow Basel II's Internal Ratings-Based approach, applying slotting criteria to these types of 'specialized lending'. By comparing the risk weights in this approach to historical default and recovery rates, we conclude that the slotting mechanism overstates the risk of the least risky infrastructure projects and is insufficiently granular in sensitivity to the different levels of risks in different infrastructure investments.¹⁵

We would suggest that the European Commission work with the Basel Committee to effect change in the Basel specialized lending framework and in particular would note:

Firstly, risk weights for infrastructure finance or project finance could be altered to better match the actual risks of the underlying assets by either adjusting the levels of the requirements in the different slots, and/or introducing more slots. Over time, banks have accumulated long-term, granular risk data in this field due to their historic role in infrastructure investment. Banks and regulators together could use these data to create slotting charges that are more in line with actual risks. In time, a more granular slotting framework could become a stepping stone for banks to models-based approach.

Secondly, the specialized lending module could better distinguish social and transportation infrastructure from other types of infrastructure, having in mind their different default and recovery characteristics. Capital requirements could also distinguish between infrastructure projects in the construction phase and those that have been finished. Finished projects have very low default rates and high recovery rates, since finished infrastructure projects are naturally collateralized through the produced asset.

We also note the potential effects of the Net Stable Funding Ratio (NSFR) on the asset allocation of banks and the costs of bank lending. The yield curves of European banks show how the NSFR's requirements for longer funding maturities may significantly increase the costs of banks' traditional funding mix of short- and long-term debt and deposits, particularly for long-term assets like infrastructure projects. This potentially leads banks to reallocate investment to shorter maturities or seek to pass on increased funding costs to borrowers.

Where infrastructure financing does not flow from banks, it may flow from other sources, but the resilience of these sources has not been demonstrated. To that end, we commend the Commission's recent Capital Markets Union proposal, which aims to diversify the sources of infrastructure financing – but we still feel that this requires all sectors of the financial services industry to be able to play their respective parts.

Specifically looking at the insurance sector, we must consider Solvency II's treatment of infrastructure investment under the Solvency Capital Requirement (SCR). This framework¹⁶ is significantly more granular than the slotting criteria in Basel II, especially for rated debt. Tellingly, however, infrastructure debt often does not have an ECAI rating, and given scale, a rating is frequently prohibitively expensive to acquire. As a result, the insurance industry also finds that low risk infrastructure investments are subject to capital charges that are indicative of neither risk nor their historic performance, compounding the CRR and CRD issues that apply for banks. Please see Appendix C for more details.

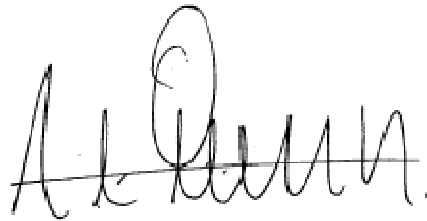
¹⁵ For this investigation, we have made use of Moody's Investors Service, 'Project finance bank loan default and recovery performance 1983-2013,' March 2015. This data set of project finance bank loans covers a 31 year period from 1983 and 2013. We note that Moody's uses a narrow definition of infrastructure including only social and transportation investments. Other installations commonly referred to as infrastructure, including media, telecom and power projects are not counted as infrastructure.

¹⁶ The spread risk factor for corporate bonds and loans

We understand this Consultation to be an early stage of the Commission's endeavors in assessing the economic impacts of financial regulation, supported by the subsequent Call for Evidence. It is our desire to engage and assist the Commission in pursuing this objective. We consider the effort to ensure stability without generating undue externalities to be a shared objective of the official sector and the industry, and also a shared responsibility.

We would be most grateful for your feedback on the issues we have identified, and for further opportunities to discuss and explore these, including where the industry can collaborate in further analysis and research.

Once again, congratulations on the initiative in launching this consultation. The IIF is pleased to support the Commission in its further review activities, and we stand ready to assist wherever possible.

A handwritten signature in black ink, appearing to read 'A. Portilla'.

Sincerely,

Andres Portilla

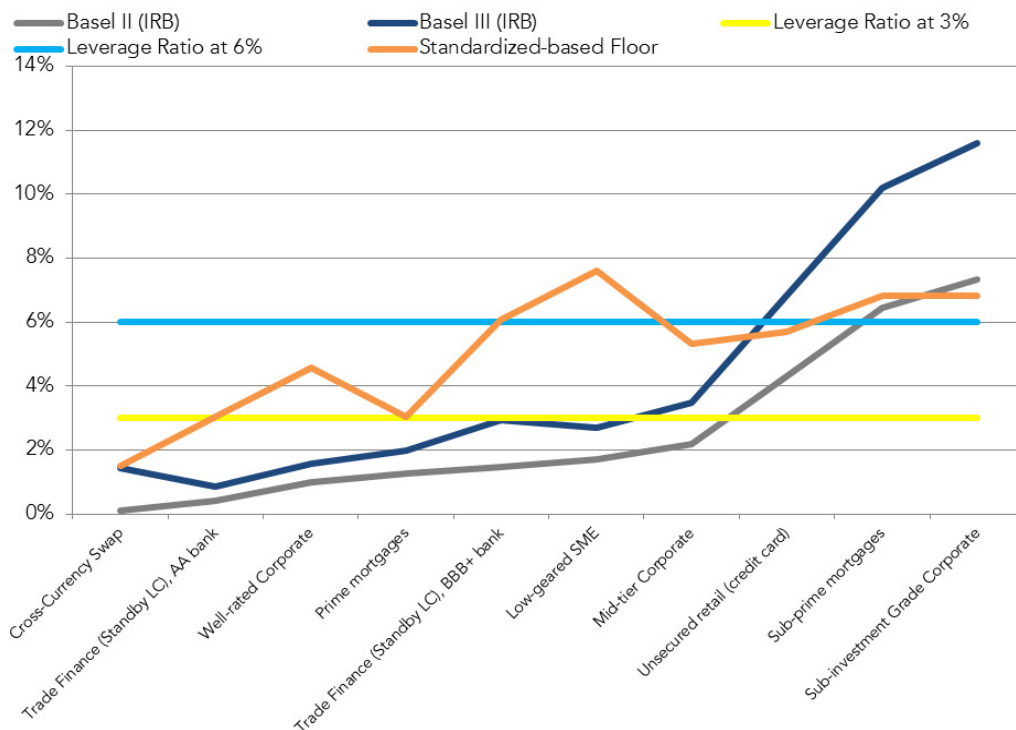
Appendix A: Risk and capital distortions

With reference to Consultation questions:

2. If you consider that capital levels go significantly beyond what is necessary in light of the level of risk incurred and posed by banking activities in certain areas, please specify those areas and back up your view with specific evidence.
6. Have increased capital requirements affected the market for some categories of assets more than others? If so, which ones and how? Which of the provisions contained in the CRR, apart from those establishing capital ratios, are likely to have created the effects experienced by specific markets and/or exposures?

The Basel III capital reforms saw increased capital levels and buffers introduced (together with improved quality of capital) as well as specific items for trading books and exposures to other financial institutions. These capital impacts (distinct from the Basel III liquidity rules) have been broadly neutral in their dispersion across business lines and customer segments, and the sensitivity of the capital framework to underlying borrowers' risk (and to the rank ordering of different risks within banks' balance sheets) has been largely preserved. This is represented in Figure 4 by a shift from the grey to dark blue line, with a 3% Leverage Ratio (yellow) serving as a backstop measure without over-riding the risk-based framework.

Figure 4: Capital Requirements across asset types under different capital regimes¹⁷



However, the suite of new proposed changes to the Basel capital framework (on the assumption that these would subsequently cascade from the BCBS into CRR and a future new CRD) stand to have concentrated impacts on specific asset types, business units and components of the credit spectrum that would appear to be unintended. In Figure 4, this represents a further shift from the dark blue line to the orange line, though more commonly over-ridden by a 6% Leverage Ratio (light blue).

¹⁷ Please see Appendix D for details of calculation assumptions

As was described above in our third major theme (Risk-sensitivity), this leads to the scenario where if a flat measure (Standardized-based Floor or Leverage Ratio) is the prevalent measure of capital, the nexus between risk and capital is broken, and the risk on strong assets becomes overstated.

Moreover, banks are required to hold a larger portfolio of High Quality Liquid Assets, such as sovereign bonds, in order to comply with the LCR. This may leave a very limited scope for discretionary holdings of other strongly-rated assets.

This scenario for stronger assets frequently arises for trade finance instruments. Trade finance is vital in facilitating global trade transactions and supporting worldwide economic growth, especially for emerging markets, many of which are heavily reliant on trade.¹⁸ Trade finance products offered by financial institutions are distinguished from other corporate loans by their short tenor (usually between 30-180 days), self-liquidating nature (without automatic rollover as they are considered on a transactional basis), low default and high recovery rates. The International Chamber of Commerce (ICC) reports default rates of 0.2% for short-term trade finance transactions compared with 0.6% for one-year, single A-rated corporate loans.¹⁹ Given the underlying goods, trade finance loans are considered to be highly collateralized.

While significant provisions were made in CRR and CRDIV for trade finance in 2013 (including lowered capital requirement for trade financing for medium/low risk and medium risk off-balance sheet trade finance instruments), a prevalent leverage ratio could readily override this, resuming the scenario of capital over-stating this asset class' true risk.

Concurrent to the overstatement of risks on strong credits for bank loans, capital requirements are also impacting fixed income, with banks deterred from holding inventories of corporate bonds. This has had profound impacts on banks' ability to perform their traditional market-making function, thereby reducing market liquidity. The recent PwC study highlighted that European corporate bond trading volumes have declined by 21% during 2010-2015, and banks' holdings of trading assets decreased by over 40% during 2008-2015.²⁰

This reduction in liquidity (and particular in banks' market-making) is a product of multiple factors, including banks de-risking (selectively de-leveraging; unwinding large credit books post-crisis) in the wake of the crisis. Regulation is certainly not the only cause, but regulatory reforms have served to compound and accelerate other trends.

Currently, the downstream impacts of this reduction in liquidity for end-user corporate issuers have been somewhat mitigated (or masked) by the extraordinary monetary policy settings of Quantitative Easing (QE). But as monetary policy normalizes, end-users may feel more of this impact, potentially compounded by the adoption of further upcoming regulatory initiatives. As part of the PwC research, a number of corporate issuers reported that they are concerned at the reduced liquidity in secondary markets for their bonds, and that while this is yet to transmit into the markets for their primary issuance given the current low interest rate environment, there is an early-warning signal to heed.

With these warning signs amidst a liquidity landscape that is transforming but still largely unclear, the IIF doesn't seek a roll-back of regulation, but rather highlights that the cumulative effects of recent regulations needs to be properly understood and considered, before embarking on further regulatory initiatives that could exacerbate these trends in bond markets. This particularly warrants consideration if all sectors of the financial services industry are going to be able to play their respective roles in supporting the Capital Markets union initiative.

¹⁸ BIS estimates that trade finance supports about 1/3 of global trade <http://www.bis.org/publ/cgfs50.pdf>.

¹⁹ <http://www.iccwbo.org/Products-and-Services/Trade-facilitation/ICC-Global-Survey-on-Trade-Finance/>

²⁰ PwC, *Global financial markets liquidity study*, August 2015

Appendix B: Cost of capital

With reference to Consultation question:

5. Are the effects of increased capital requirements, such as they are, generally temporary and transitional or have structural changes been seen? Has the requirement to hold higher levels of capital increased the cost of funding banks? Has the per-unit cost of bank capital decreased as banks have become less risky?

As discussed in Section 2, the Cost of Capital must be considered alongside ROE, and current levels call into question the long-term sustainability of the industry.

The IIF utilized Bloomberg Data to generate all graphs in this section. Figure 3 shows the total trend on ROE and COE (cost of equity) since 2005 for EU GSIBs as identified in the Financial Stability Report of November 2014. ROE is estimated with the formula: (Net income available for common shareholders / average total common equity) * 100. COE is estimated by using data from the WACC (weighted average cost of capital) formula²¹. COE is estimated with the formula: Risk Free Rate + (Beta * Country Risk Premium)²².

EU GSIBs' profitability continues to be depressed with a simple average ROE of 3.8% at the end of 2014. The trend shows slow improvement with the industry returning to profitability; nevertheless, reaching its highest end-year value since 2011. However, levels continue to be significantly lower than pre-crisis levels. This coincides with the findings provided by the EBA in their recent *Risk Assessment Report* (June 2015), in which they also concluded that ROE remains subdued and insufficient to cover banks' COE.

In terms of COE, comparing the same time period in order to assess its evolution, we note that in 2014 the EU average COE was 12.7%, 3 percentage points lower than in 2011. This trend is similar to the one indicated by the *EBA Risk Assessment Report*, in which the EBA analyzed the COE for 30 EU listed banks, and found the EU average COE to be 9.5%, whereas the average in 2011 had been 14.6%. The same study also reported that the majority of EU banks (80%) estimate their COE to be between 8% and 12%.

The gap between COE and ROE has not improved significantly, and ROE levels remains insufficient to cover banks' COE. It is important to note that this trend has been taking place concurrently to rising capital constraints in Europe, including leverage. In order to cover COE and improve ROE, banks have made some improvements, in the form of cutting costs. However, this trend is not sustainable long term, as firms will eventually have to adjust pricing of services to the real economy, which may result in end-borrowers seeing an increase in cost of credit.

²¹ WACC is the rate of return that the providers of a firm's capital require, weighted to the proportion each element bears to the total pool of capital. The financial statement data that appears in WACC by default is from the company's annual periods. WACC can be calculated as:

$$\text{WACC} = (\text{Cost of Equity} * \text{Weight of Equity}) + (\text{After Tax Cost of Debt} * \text{Weight of Debt}) + (\text{Cost of Preferred Equity} * \text{Weight of Preferred Equity}).$$

The beta figure used in calculations is obtained from the *Historical Beta* (BETA) function. The risk free rate and equity risk premium figures used are obtained from the *Equity Risk Premium* (EQRP) function.

²² Bloomberg's Cost of Equity for the security is calculated as: Cost of Equity = Risk-free Rate + [Beta x Country Risk Premium]. The Country Risk Premium is calculated as *Expected Market Return* – *Risk Free Rate*. Bloomberg defines the *Expected Market Return* as the implied return expected from the market(s) using forecasted growth rates, earnings, dividends, payout ratio, and current values. The market return is calculated by taking a capital weighted average of the internal rate of return over all the members of the country's major index. Bloomberg calculates the *Risk Free Rate* using the yield of a 10-year treasury security. If such a security is not available a long-term swap rate is used.

Additionally, tighter leverage constraints will require the increase in ROA to become larger. Figure 5 below shows a simple example of the effect of a 1% increase in the leverage requirement, and its effect in ROA for one-quarter in order to achieve ROE = COE. It can be concluded that small percentage point changes in leverage requirements prospectively drive large behavioral responses.

Figure 5: Example of increase in leverage

| COE | Leverage Requirement | ROA in one-quarter |
|-----|----------------------|--------------------|
| 12% | 4% (25x) | 0.48% |
| 12% | 5% (20x) | 0.6% |

This is consistent with a recent article published in the *Bank of England's Quarterly Bulletin*²³ that discusses banks' internal pricing approaches. This article explains that banks determine interest rates on loans and deposits through an internal pricing approach that takes into account relevant costs and risks of the business. The internal process is typically carried out by the treasury function that borrows deposits raised by deposit-taking units of the bank and lends to loan-originating units. The treasury function will likely decide on the transfer price based on the bank's funding costs, related risks, and any management decisions to incentivize lending or deposit-taking, whereas the business line will decide on a rate taking the transfer price into account.

As previously suggested, the short-term strategy of cutting costs is finite. As confirmed by the *Bank of England's Quarterly Bulletin* article, new loans are typically priced at a spread above its transfer price which will include costs associated with any expected loss on the loan, the capital charge associated and other factors. In this context, a longer-term strategy could raise the rates charged on new loans.

Further Comparisons

By Level of Capitalization

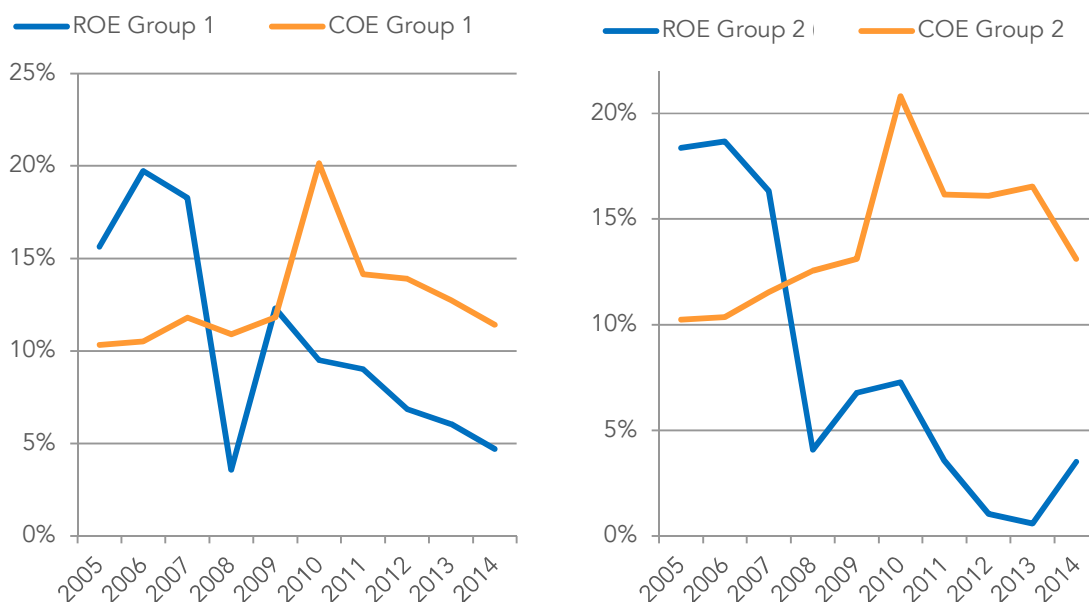
We initially attempted to divide the GSIBs into two groups: well-capitalized and those adequately-capitalized. However, all the EU GSIBs are technically well-capitalized banks with 2014 Tier 1 capital ratios of between 11.26% and 17.9%, well in excess of a minimum regulatory requirement of 6.0%.

Therefore, we split the banks into two groups:

- Group 1 includes banks with a current tier-1 capital ratio of 14% or greater; and
- Group 2 includes banks with a ratio of less than 14%.

²³ Fabrizio Cadamagnani, Rashmi Harimohan and Kumar Tangri, A bank within a bank: how a commercial bank's Treasury function affects the interest rates set for loans and deposits, *Bank of England's Quarterly Bulletin*, Q2 2015

Figure 6: ROE and COE, Tier 1 Capital, Groups 1 and 2 by capitalization



Source: Bloomberg

Figure 6 shows the evolution of ROE and COE values since 2005 by Group. In Group 1, banks' profitability end-2014 is above that of Group 2 countries, and COE levels are also lower. Group 1's overall trend displays a consistent decrease in COE levels since 2009, and a similar reduction of ROE levels.

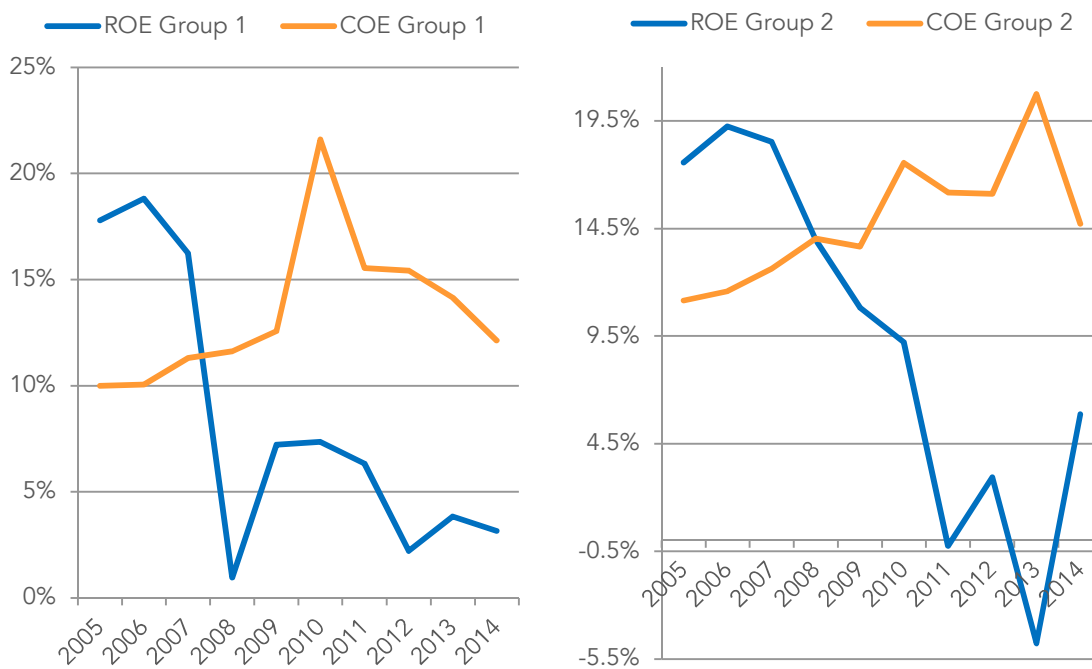
Comparably, Group 2's overall trend indicates a less defined reduction of COE levels and more volatility in the end-of-year values for ROE. If end-2014 values are not taken into account, ROE values would also indicate a reduction in values.

Within EU GSIBs

Despite the improvement of ROE since its lowest levels, profitability is still low. We have taken in our calculations the same geographical split as the *EBA Risk Assessment Report* dividing countries into two groups (Group 1 and Group 2). Group 1 countries include Germany, France, Sweden, the UK, and the Netherlands; and Group 2 countries include Spain and Italy.

Figure 7 shows the evolution of ROE and COE values since 2005 by Group. In Group 2 countries, banks' profitability end-2014 is above that of Group 1 countries. However, looking at the overall trend, volatility in Group 2 countries is higher.

Figure 7: ROE and COE, Tier 1 Capital, Groups 1 and 2 by country grouping



Source: Bloomberg

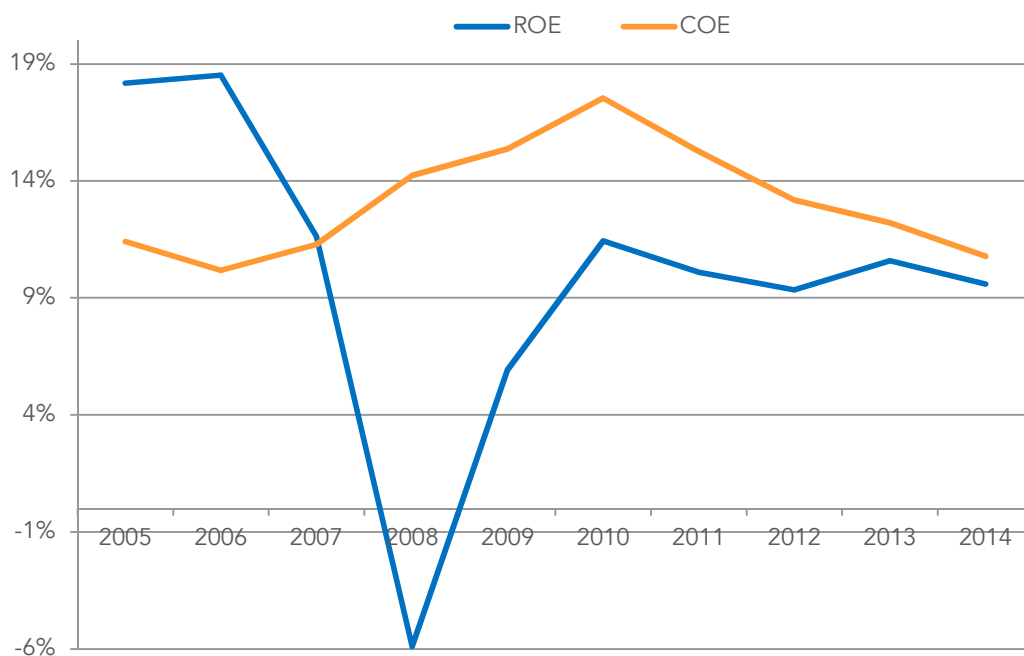
Non-EU GSIBs

Comparing the levels of profitability between EU GSIBs and non-EU GSIBs indicates that in average EU GSIBs' profitability remains depressed and significantly lower than in non-EU GSIBs²⁴. Figure 8 below shows the evolution of ROE and COE values since 2005 for non-euro area GSIBs.

A major change in COE values can be seen in Figure 8 below, where the trend shows that the COE values have been decreasing since 2010, and almost closing the gap between the COE and ROE values.

²⁴ For the purposes of these calculations, the same ROE and COE formulas as in the previous figures have been used.

Figure 8: RoE and CoE non-EU GSIBs



Source: Bloomberg

Modigliani-Miller Theorem and Banking

It is worth revisiting the Modigliani-Miller Theorem (M&M), which maintains that within a firm there is no optimal relationship of equity finance and debt finance, and that as a consequence of greater risk, any increase in profitability through greater leverage will be offset by an increase in the unit cost of the remaining equity capital.

We looked at empirical evidence whether and how the M&M proposition applies to the banking sector. The banking sector is a sector that involves as its main input debt in the form of deposits, and the main product is a store of value that has a high degree of safety and liquidity, transforming short-term claims into long-term claims. Considering that deposits amount to a large portion of assets in a firm, and that these are relatively stable, the ratio of debt to assets tends to be higher than in most sectors. In addition, not all debt is sensitive to leverage, as is the case of insured deposit for which LGD is zero on account of deposit insurance. Therefore, the implication is that a reduction in leverage is not passed on into a reduction of the cost of debt.

Further, other incentives within the regulatory framework, such as the LCR have driven banks to raise more deposits, and rely less on wholesale funding. This is also coupled with a general desire to remove pre-crisis large customer funding gaps.

There is considerable literature²⁵ that these characteristics of banks are different than those of other sectors that are worth revisiting. In a recent study, Harry DeAngelo and Rene Stulz (2013) conclude that M&M is inappropriate for banks "given a material market demand for liquidity, intermediaries will emerge to meet that demand with high leverage capital structures." Moreover, DeAngelo and Stulz indicate that banks are different from other types of firms because "financial flows are the inputs and the outputs they utilize to generate value for their shareholders."

²⁵ For instance: Eugene Fama and Kenneth French, The Cross-Section of Expected Stock Returns, *Journal of Finance* 67, no. 2 June 1992; Richard Herring, The Capital Conundrum. *International Journal of Central Banking* 7, no.4, 2011.

A more recent study by William R. Cline²⁶ (2015) ran a statistical test for large US banks using 2002-2013 data and found that less than half of the M&M offset attains in practice. His findings indicate that higher capital requirements impose increases in lending costs. The implication is that while deposit insurance and government guarantees create incentives to debt, the regulatory framework asks for more equity.

Important Challenges

Based on the *EBA Report*, ROE remains insufficient to cover the COE for 80% of EU listed banks. In addition, our calculations using Bloomberg data also validate that ROE levels in EU listed banks are indeed below the COE levels. This may discourage risk taking and in the short-term lead to cost-cutting in order to increase profitability. However, cost-cutting can only be a short-term strategy, in the long-term this would translate into a change in the price of services to the real economy with end-borrowers seeing an increase in the price of services, such as loans. In addition, Basel III NSFR framework, which banks have not yet seen its full impacts since national implementation is still undergoing, are likely to have additional implications on banks' deposits and funding structure.

The *EBA Report* attempts to address this trend, emphasizing that banks attribute the new regulations on capital as one of the drivers affecting funding costs, as well as downward pressures of net interest margins.

Similarly, McKinsey's *The Fight for the Customer*²⁷ findings indicates that although overall ROE has improved worldwide for the third year in a row, this is due to banks compensating falling margins with improved cost efficiency. The Report also alludes that this trend can only continue in the short term, and estimates that in the next 5-10 years several retail businesses will be in serious jeopardy with 10-40% of revenues at risk, with consumer finance, mortgages, SME lending, retail payments and wealth management expected to be much more affected. McKinsey argues that although many in the industry expect a rise in interest rates to provide structural support to profits, this increase will not exceed COE, and banks risk competing away most of the potential windfall.

Ernst & Young (EY) in cooperation with the IIF conducts an annual study of *risk management practices shifting focus: Risk culture at the forefront of banking*²⁸. Last year's study surveyed 52 firms across 27 countries. In the *2014 Study*, EY indicated that higher capital and liquidity buffers, and the pressure of investors against the resulting lower ROEs, have made many business lines unprofitable for banks. The *2014 Study* indicated that firms continue to exit business lines (43%), and geographies (11%), as well as shifting out of less liquid instruments (28%). Based on the EY 2014 Study, 65% indicate that Basel III will have significant impact on costs; as a consequence 52% of banks indicated that they are pushing down the target ROEs to between 10% and 15%.

There is also a notion that investors will accept a lower ROE because banks are safer. However, in the *EY 2014 Study*, 65% of respondents indicated that investors are pushing for increases in ROE. Furthermore, the *EBA Report* indicates that market analysts believe that shadow banking is one of the trends impacting the EU banking sector and banks' business models. Thus, the tightening of banks' regulations is a factor that in combination with the search for yield may be pushing traditional banking activities to other sectors.

²⁶ William R. Cline, Testing the Modigliani-Miller Theorem of Capital Structure Irrelevance for Banks, *Peterson Institute of International Economics*, April 2015

²⁷ McKinsey Global Banking, 5th Annual Review of the Banking Industry, *The Fight for the Customer*, September 30, 2015.

²⁸ As indicated in the Cost of Capital Section, the publication of the E&Y 2015 study will take place after the submission date for this consultation. However, E&Y have indicated that the trend described above continues.

Appendix C: Infrastructure

With reference to Consultation questions:

10. *Has the CRR influenced the capacity of banks to provide loans to infrastructure projects? Which provisions are most relevant?*
11. *What are the specific difficulties that banks face when lending to infrastructure projects? Are they related to the CRR? How could the CRR and other prudential regulations contribute to addressing some of these difficulties or do they need to be resolved by some other means? If so, what other means would be adequate?*
12. *Should infrastructure projects continue to be treated as loans to corporate borrowers? If not, why? What common features of infrastructure projects or their subsets would justify a separate treatment from loans to corporate borrowers?*

This appendix examines the treatment of infrastructure investments under CRR/CRD IV by comparing historical risk data for infrastructure investments, treatment in CRD's standardized approach, and under Solvency II. It also discusses the requirements for infrastructure investments by the Net Stable Funding Ratio.

Infrastructure Investments

While the scope and definition of infrastructure varies in different contexts, it generally refers to strategically important and capital intensive assets, including "economic" infrastructure, like power generation and transmission, water and sewerage, transportation and telecom and "social" infrastructure like hospitals, schools, social housing and prisons.²⁹ Infrastructure investment has the key features of long duration (and therefore illiquidity) and inelastic demand.

The main risks in an infrastructure investment project include: construction; operation; and revenue risks. Exchange rate, political and country risks are also considered, particularly in overseas projects, but are less unique to infrastructure investments³⁰. One way of breaking down infrastructure projects is through distinguishing between "greenfield" and "brownfield" projects. "Greenfield" projects are new investments that bear higher risk and higher potential return, and mostly take place in emerging markets. "Brownfield" refers to currently existing projects that require investments in renovation or advancement. They are usually less risky and are often located in developed markets.

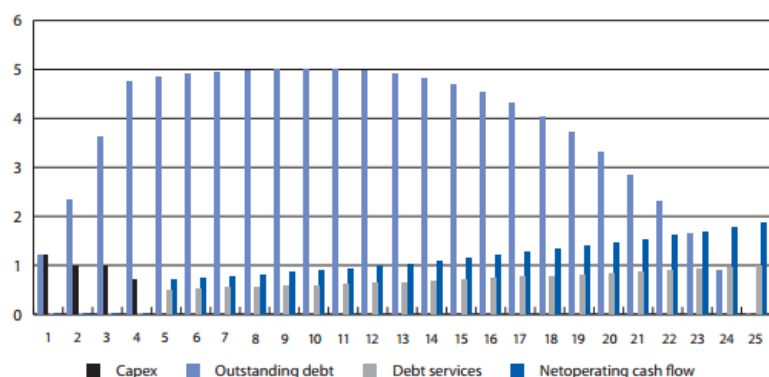
The risks of an infrastructure project also vary depending on project phase. Planning and construction phases are usually associated with higher risks, and investors usually have negative cash flows due to high capital requirements. High payouts are expected during the later phases of the investment³¹.

²⁹ <http://www.oecd.org/daf/fin/private-pensions/Private-financing-and-government-support-to-promote-LTI-in-infrastructure.pdf>

³⁰ The economics of infrastructure finance: Public-Private Partnerships versus public provision, EIB 2010

³¹ Insurers' Investment in Infrastructure: Overview and Treatment under Solvency II, 2014

Figure 9: Time profile of cash flows of an infrastructure project



Source: EIB, 2010

In terms of source of financing, government investment has declined significantly as the private sector stepped up over the past 30 years. Although government investments still dominate the education sector, private sources seem to play a larger role in other sectors including health, transport and utilities. A key trend to note is that Public-private partnership (PPP) is more commonly used in recent years to replace and complement public provisions for projects that require large upfront investments (such as highways, bridges and airports)³² PPP, a form of project finance, is a contractual arrangements between a public sector authority and private investors to provide a public good or service.

Figure 10: Infrastructure financing instruments and investment vehicles

| | | direct | indirect |
|--------|---------|--|---|
| equity | public | listed infrastructure & utility stocks | listed infrastructure equity funds; index funds; EFTs |
| | private | direct equity investment in infrastructure company / project | unlisted infrastructure funds |
| debt | bonds | corporate bonds of infrastructure companies; PPP/PFI bonds; US municipal | infrastructure bond funds |
| | loans | direct loans to companies / projects / asset backed financing | infrastructure loan / debt funds |

Source: EIB, 2013

In terms of the overall capital structure for private infrastructure finance, more than 80 percent of infrastructure investments in Europe take the form of debt financing, with bank loans being the largest portion, representing over 70% of total financing. According to an EIB study in 2010, there are no significant differences in capital structure between PPP and non-PPP projects.³³

³² The economics of infrastructure finance: Public-Private Partnerships versus public provision, EIB 2010

³³ Infrastructure finance in Europe: Composition, evolution and crisis impact, EIB 2010

Figure 11: Average capital structure of EU projects

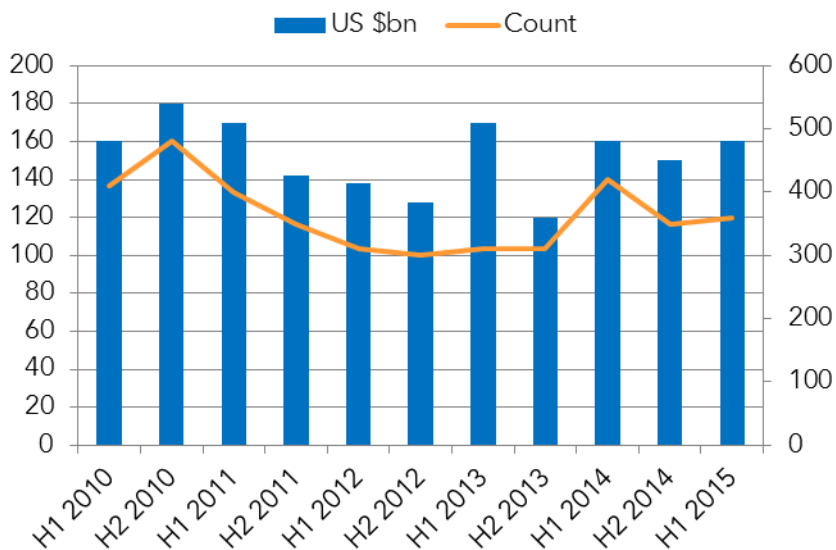
| 2006-2009, in percent of total | | |
|--------------------------------|-----|---------|
| | PPP | Non-PPP |
| Equity | 12 | 15 |
| Debt | 88 | 85 |
| Loan | 77 | 83 |
| Bond | 10 | 2 |
| Number of observations | 16 | 16 |

Source: Projectware, own calculations

After the recent crisis, there have been a number of initiatives to boost public and private investment in Europe, most notably the Juncker Plan, a European Commission’s investment plan. The Juncker Plan aims at delivering over €315 billion of additional investment over the next three years through mobilizing finance, providing technical assistance at all levels and promoting collaboration among institutions and different regions, as well as improving investment environment. The Juncker plan has provided a political incentive to improve capital framework for infrastructure assets.

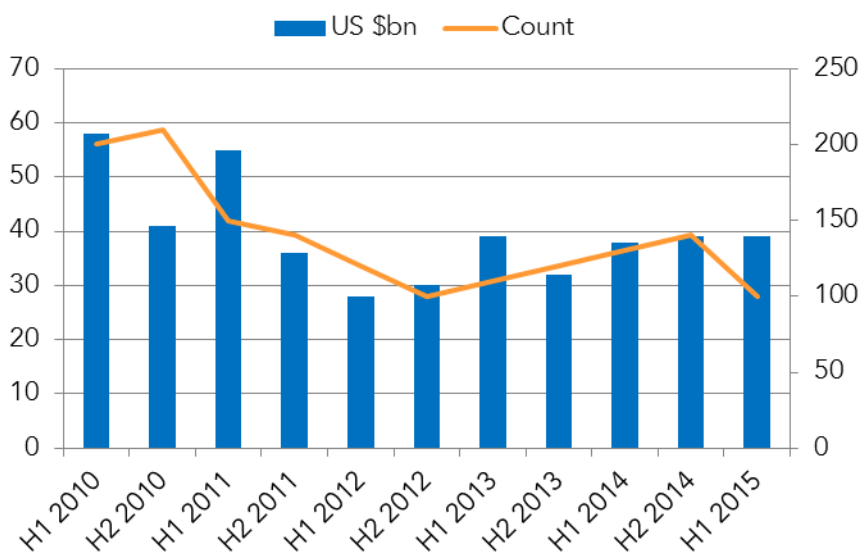
As Figures 12 and 13 show investment in infrastructure globally has been reasonably flat post-crisis but in Europe is actually endured a material decline. While there are multiple factors behind these trends, it is likely that regulation has played some role.

Figure 12: Global finance transaction volume



Source: IJGlobal

Figure 13: Europe project finance transaction volume



Source: IJGlobal

Banking

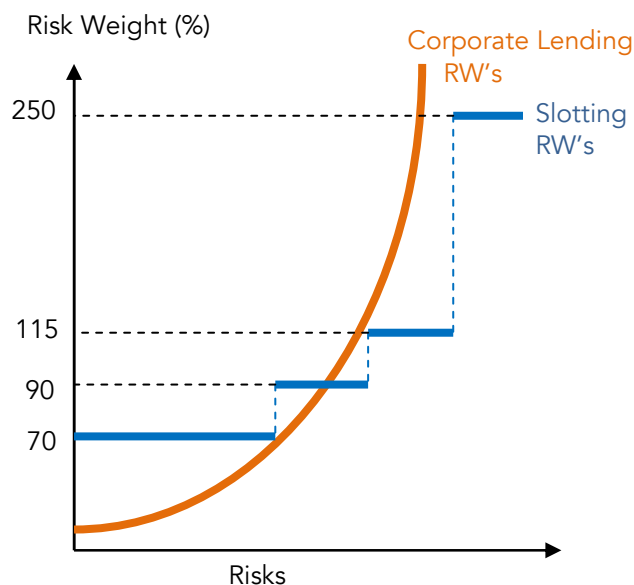
The Slotting Criteria for Specialized Lending

Capital requirements for infrastructure investments in CRR are based on the slotting approach for these exposures in Basel II. Basel and CRR require banks to have their internal models follow the Internal Ratings Based (IRB) approach for corporate lending exposures. The IRB provides for a specific capital treatment for 'specialized lending': 'loans which finance income-producing assets and which are structured in such a way that repayment of the loan depends principally on the cash flow generated by the asset rather than the credit quality of the borrower³⁴'. Project finance, including infrastructure investment, is one of the exposures falling into this category.³⁵

³⁴ Basel Committee on Banking Supervision, 'Working paper on the internal ratings-based approach to specialized lending exposures,' Basel, October 2001.

³⁵ Other exposures under specialized lending are income-producing real estate, object finance such as shipping, and commodities finance.

Figure 14: Slotting criteria for specialized lending exposures without determined probabilities of default in the Internal Ratings Based Approach.



The Basel Committee gives two primary reasons for the separate treatment of specialized lending exposures from other corporate lending. First, the 'unique loss distribution and risk characteristics' of such loans, which may exhibit greater risk volatility due to their concentrated exposure. Second, 'most banks use different internal risk rating criteria for such loans, and may treat them separately in other internal risk management processes.'³⁶

In that same paper it is further argued that 'historical loan performance data for specialized lending exposures are scarce. Many banks therefore face difficulties in establishing credible and reliable estimates of key risk factors (including the probability of default), which can be adequately validated by both the bank and its supervisor.'³⁷ To deal with this uncertainty, the IRB prescribes the use of standardized 'slotting criteria' which assign a risk weight to an exposure based on its risk. The strongest slot (for specialized lending exposures of the highest quality) in the CRR receives a 70 percent risk weighting at minimum, with slotting risk weights increasing to a maximum of 250 percent for assets with a lower credit rating.

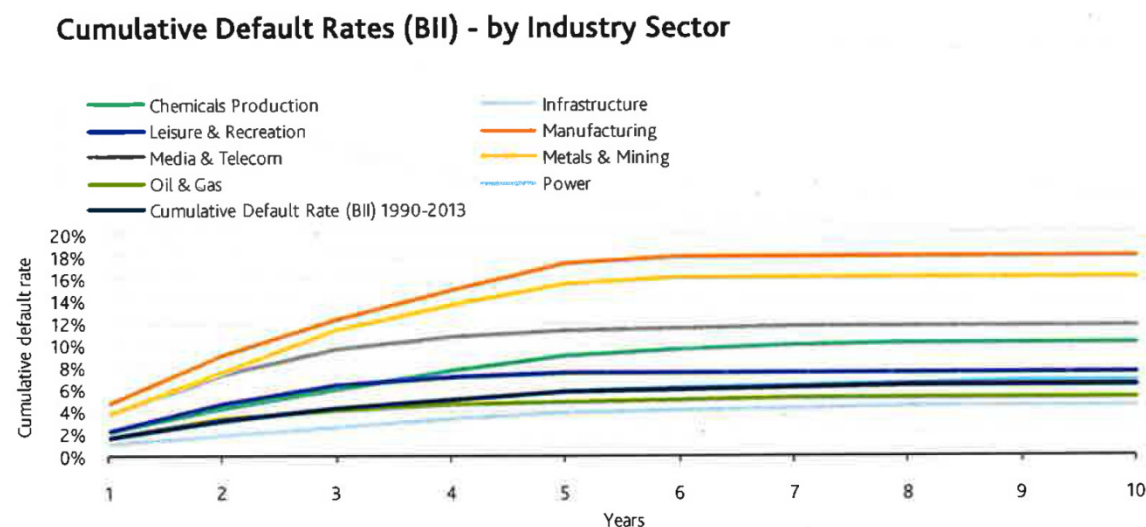
As a general rule, prudential frameworks should incentivize financial institutions to allocate capital based on appropriate risk/return considerations. To that end, institutions should hold capital in proportion to an asset's underlying risks. It is thus relevant to see how these risk weights compare to the actual long-term risk and performance data of infrastructure. Moody's has compiled an extensive data set of project finance bank loans covering a 31 year period from 1983 and 2013, giving a good overview of infrastructure investment performance in the last decades, in absolute terms as well as relative to other project finance exposures.³⁸ It should be stressed, though, that Moody's uses a narrow definition of infrastructure including only social and transportation investments. Other installations commonly referred to as infrastructure, including media, telecom and power projects are not counted as infrastructure.

³⁶ Basel Committee on Banking Supervision, 'Working paper on the internal ratings-based approach to specialized lending exposures,' Basel, October 2001.

³⁷ Idem.

³⁸ Moody's Investors Service, 'Project finance bank loan default and recovery performance 1983-2013,' March 2015.

Figure 15: Cumulative Default Rates by Industry Sector



Source: Moody’s investors service, ‘Overview: Project finance bank loan default and recovery performance 1983-2013’

The study indicates that social and transportation infrastructure investments have a relatively low 10 year cumulative default rate of 4.5% compared to a default rate of 6.4% for all types of project finance. Also, at around 70%, ultimate recovery rates were relatively high. This implies that expected losses on infrastructure investment amounted to about 1.35% in this timeframe.³⁹ Compared to the historical risk of infrastructure investment over a 30-year time frame, capital requirements for infrastructure investments equaling 7 to 25% of capital seem to be relatively high and not entirely reflective of the underlying risk.

Implications for the treatment of infrastructure finance under CRR/CRD IV

Our analysis indicates that the regulatory treatment of infrastructure investments under the CRR may be overstating the risk of this asset class. There are several possibilities to address this issue.

First, in line with question 12 of the Commission’s consultation paper, we would like to note that infrastructure projects have significantly different investment characteristics than corporate borrowers. Prudential frameworks should adequately tailor capital requirements to the risks of underlying exposures. In the slotting criteria approach, risk weights for infrastructure finance or project finance could be altered to better match the actual risks of the underlying assets. This could be done by altering the levels of the requirements in the different slots, and/or introducing more slots, better tailoring requirements to underlying risk.

Second, the specialized lending module could better distinguish social and transportation infrastructure from other types of infrastructure investment. Data from Moody’s shows that these types of infrastructure investments have, over the course of 30 years and multiple economic cycles, shown a low default rate and high recovery rate. Also, the module could distinguish capital requirements between infrastructure projects in the construction phase and those that are finished. Over these two periods, infrastructure investments have fundamentally different characteristics: finished projects have very low default rates and, with construction finished an asset has been created that serves as collateral. The high recovery rates of finished projects are reflective of this.

³⁹ The calculation is as follows: (10yr cumulative default rate) x (1 - recovery rate) = 4.5 x 30% = 1.35% is expected loss on infrastructure in the Moody’s study sample.

The rationale for a slotting approach in specialized lending has been primarily the lack of historical risk data in this class. If one looks at the general market for infrastructure finance, this lack of transparency and available performance data is still a problem today. For example, it is a major impediment to investment in this field by institutional investors. More information is held by private actors, primarily banks, whose historical role of banks in infrastructure investment has allowed them to accumulate long-term, granular internal risk performance data. With these data, banks could together with regulators work to create slotting charges that are more in line with the actual risks of these investments.

NSFR

The Net Stable Funding Ratio (NSFR) is currently being introduced as part of the liquidity framework under Basel III and means to put a limit on maturity transformation of banks.⁴⁰ It is calculated as a bank's available stable funding divided by its required stable funding, with banks having to meet at minimum a regulatory ratio of 100 percent beginning 2018. The NSFR assigns a required stable funding requirement to assets based on several characteristics: an asset's quality, liquidity and tenor, the likelihood that it will be rolled over, and whether it is an instrument supplying funding to the real economy.⁴¹

Infrastructure investment can take different forms. As such, there is not one way in which they are treated under the NSFR. It can, however, generally be said that the instruments issued as infrastructure financing receive relatively high stable funding requirements.

Infrastructure investments are usually categorized under project finance, which can comprise both equity and specialized loan parts. An equity proportion under project finance would account for non-exchange traded equity and receives a 100% RSF; the specialized lending part would receive an 85% RSF charge. Project finance can also be issued through an SPV, for example as structured finance, making it count as an off-balance sheet exposure under the NSFR. For these items, supervisors have a large degree of national discretion in setting the required stable funding factor.

By limiting maturity transformation, the NSFR serves to decrease a bank's liquidity risks. However, funding at longer maturities is more expensive than funding using short-term debt (see the yield curves of European banks in Figure 16). Banks have historically funded long-term assets with a mix of short-and long-term funding such as short-term wholesale funding, deposits and long-term bonds already before the introduction of the NSFR. Consequently, the NSFR's requirements may lead to the cost of funding long-term assets such as infrastructure investment to go up.

This effect may be amplified as banks are now lower rated than before the crisis, increasing the cost of funding at all points of the yield curve (in the graph, for example moving from the AA+ curve to the A+ or BBB+ curve). As a result of both developments, banks have generally moved into a more expensive part of a more expensive yield curve.

Just for illustrative purposes, we compare the impact of funding a long-term loan with short-term and with longer term liabilities. While a typical AA-rated bank may pay only 0.06% annualized interest on a six month debt obligation, interest paid is more than a tenfold of that for a five-year bond (which yields 0.736%). A typical infrastructure project can easily require an investment with a maturity of 20 years, the cost implications of matching funding for banks are clear. To give an example of two outcomes on the extreme sides of the possibilities, funding a 20-year project finance loan with only three months bonds would cost an AA-rated bank in our sample a total of EUR 9,800 in bond interest. In contrast, funding the same asset under the NSFR will cost the bank more than double that amount (EUR 20,680) in interest.⁴²

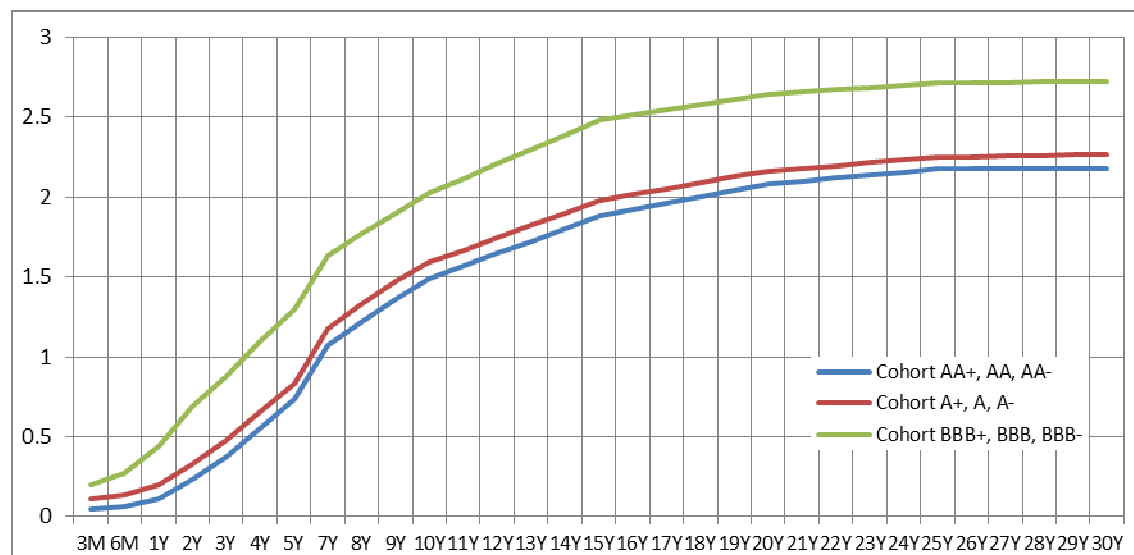
⁴⁰ Basel Committee on Banking Supervision, 'Basel III: the net stable funding ratio,' October 2014.

⁴¹ BCBS 2014, p. 3.

⁴² 20 years of 0.049% interest payments on a EUR 1 mln loan amount to EUR 9,800. In contrast, the NSFR would require 85% of the same loan to be funded with one year maturities, which could drive the total funding cost up to EUR 20,680 if matched.

Banks may consequently decide to hold less long-term assets on their balance sheets, substituting them for assets with a shorter maturity, and/or increase the interest charged on long-term lending.

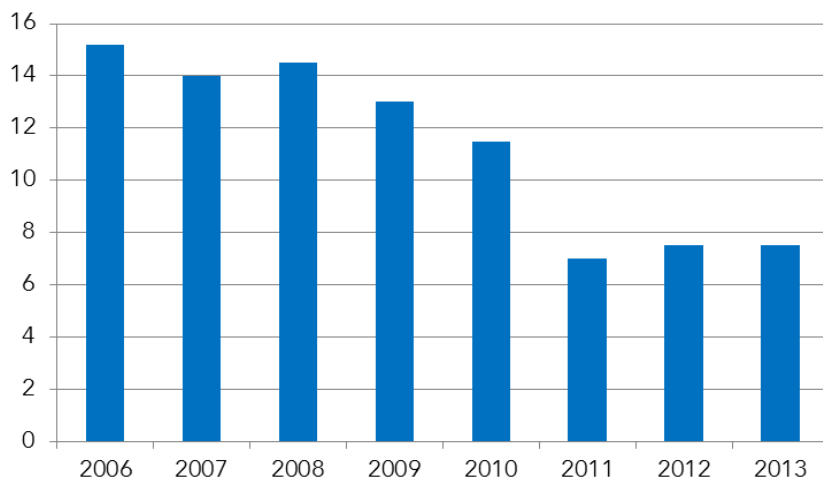
Figure 16: Yield curves of European banks, September 18, 2015



Source: Bloomberg.

It should be noted that the average duration of PPP bank loans (a category of infrastructure finance) in Europe has decreased by roughly 50% since the financial crisis. This potentially reflects tougher funding conditions for banks as a result of the crisis, as well as the introduction of the NSFR, of which a first proposal was introduced in 2010. Unlike many other requirements under Basel III, there is no specified phase-in path for the NSFR before implementation in 2018. However, forward-looking markets may already pressure banks to comply before the implementation date. The impact of the NSFR on the maturities of bank loans would in our view deserve further investigation.

Figure 17: Average maturity of loans in infrastructure projects (average of greenfield and brownfield)



Insurance

The attributes of institutional investors

As investment becomes increasingly more expensive for the traditional suppliers of infrastructure loans, this niche is theoretically filled by pension funds, insurance companies, mutual funds, sovereign wealth funds, et.al. (institutional investors). Institutional investors are well placed to participate in infrastructure investment as the very nature of long-term insurance business matches the maturity structure of such long-term liabilities. Institutional investors also usually face less liquidity restraints.

Counter to this, by comparison to the banks, most institutional investors do not currently have the specific valuation expertise to perform in this sector. Expertise is required in two aspects: both initial due diligence and deal structuring; and also over the life of the investment to manage the exposures as they are highly covenanted and hence typically subject to on-going consents and waivers. Demise of monoline insurers during the global financial crisis has exacerbated this knowledge gap, as many institutional investors relied on them for project evaluation and monitoring. Other investment impediments are undersupply of financing vehicles for the majority of investors who cannot afford to directly invest in infrastructure, as well as relative underdevelopment of the European bond markets.

Current regulatory treatment

Under Solvency II, insurers calculate their solvency capital requirement (SCR) either through the use of a boutique, firm specific internal model or via the standard formula, which sacrifices granularity and risk sensitivity for relative ease and an off-the-shelf SCR. Many if not most insurers will use the standard formula assumptions as a basis in the calculation of their model, but it is important to consider that the treatment and proposals below apply to the standard formula and not an internal model. This will have market-specific ramifications: any improvements to the standard model formula will impact, for instance, Germany more than the UK as most German life insurers will be using the standard formula and most UK firms with significant guarantee business will use internal models.

The 2015 Consultation Paper on the identification and calibration of infrastructure investment risk categories recognizes the debt, but also evolution, between the Basel 'slotting criteria' and the Solvency II method where infrastructure investments are treated as assets-backed securities under the spread risk sub-module within the Standard Formula. Under Basel the grade assigned a project loan is subject to supervisory approval; a similar supervisory approval mechanism is not found in this element of Solvency II.

The 'grades' under the Solvency II standard formula are therefore determined by reference to the ECAI credit quality steps. An excerpt is included below.

Figure 18: ECAI credit assessments (excerpt)

Article 1

Allocation of ECAI credit assessments to an objective scale of credit quality steps

For the purpose of the allocation of ECAI credit assessments to an objective scale of credit quality steps, the following table shall apply:

| N. | ECAI | 0* | 1* | 2* | 3* | 4* | 5* | 6* |
|----|------------|-----|----|---------------|-----|-----|----|-------|
| 1. | AMBEST | aaa | aa | a | bbb | bb | b | <b |
| 2. | ARC | - | - | AAA, AA, A | - | BBB | BB | B, <B |
| 3. | Assekurata | - | - | AAA, AA | A | BBB | BB | B, <B |
| 4. | Axesor | - | - | AAA, AA, A | BBB | BB | B | <B |

Once the grade of the instrument is ascertained the following charge applies depending on duration.

Figure 19: Standard Formula spread risk factor for corporate bonds and loans

| Duration | 0 | 1 | 2 | 3 | 4 | 5 | 6 | unrated |
|----------|-------|-------|-------|-------|-------|-------|-------|---------|
| 10 | 7.0% | 8.5% | 10.5% | 20.0% | 35.0% | 58.5% | 58.5% | 23.5% |
| 21 | 12.7% | 13.9% | 16.0% | 30.5% | 47.1% | 64.0% | 64.0% | 36.0% |
| 22 | 13.2% | 14.4% | 16.5% | 31.0% | 47.6% | 64.5% | 64.5% | 36.5% |
| 23 | 13.7% | 14.9% | 17.0% | 31.5% | 48.1% | 65.0% | 65.0% | 37.0% |
| 24 | 14.2% | 15.4% | 17.5% | 32.0% | 48.6% | 65.5% | 65.5% | 37.5% |
| 25 | 14.7% | 15.9% | 18.0% | 32.5% | 49.1% | 66.0% | 66.0% | 38.0% |

The treatment under Solvency II, and therefore in insurance, is significantly more granular than the slotting criteria in Basel. Tellingly, however, infrastructure debt often does not have an ECAI rating, and given scale, a rating is frequently prohibitively expensive to acquire. EIOPA developed a methodology for unrated debt that ensures a credit quality commensurate with credit quality step 3. EIB data from 2010 suggests that the majority of infrastructure bonds in Europe receive a low BBB rating absent credit enhancement. Despite these advantages, and similarly to the position in banking, the insurance industry believes that low risk infrastructure investments are subject to capital charges that are indicative of neither the risk nor their historic performance.

Future developments and industry concerns

The Juncker Plan remains a key source of political pressure on EIOPA to revise the standard formula.

EIOPA has recognized this debate in a July 2015 consultation paper (mentioned above), and the 2013 LTI report. In the consultation paper, EIOPA proposed adjusting risk factors for infrastructure investments under the Solvency II Standard Formula.

On September 29 EIOPA released its advice to the EC that followed similar themes: the creation of a separate asset class, leading to more granular assessment, specifically focusing on high quality infrastructure. Provided the qualification requirements are met (including predictability of cashflow, ability to withstand stresses, and appropriate onboarding due diligence) EIOPA proposes that the spread risk submodule be amended following a modified credit risk approach, which EIOPA believe would lead to a risk charge reduction c. 30% for BBB rated infrastructure. The examples provided by EIOPA for two potential approaches suggest the capital requirement for spread risk on a 'BBB' 10-year infrastructure bond could be 17.11% or 15.2%, in contrast to the 20% requirement under the current Solvency II rules.

On September 30 the European Commission published amendments to the Solvency II Delegated Acts to make a number of substantive changes, but most vitally to infrastructure. 'Qualifying infrastructure investments' will now form a distinct asset category under Solvency II and will benefit from an appropriate risk calibration in the standard formula, lower than that which would otherwise apply (for example the calibration of the stress factor for such an investment in unlisted equity is lowered from 49% to 30%). Provided Parliament and Council neither object nor extend their period of consideration, these changes should come into force in time for Solvency II going live.

These developments represent a directional improvement in the capital treatment of infrastructure assets held by insurers; we would encourage a similar philosophy be adopted in the applicability of CRR/CRD IV with respect to infrastructure assets held by banks.

In summary:

- The Specialized Lending (Slotting Criteria) treatment used in many jurisdictions is insufficiently granular; lacks sensitivity to risk; and overstates the true risk for highly-rated projects
- NSFR – banks moving away from maturity transformation further up the lending curve
- The capital treatments for insurers have similarly overstated the risk on well-rated projects, but recent positive developments stand to mitigate this
- Banking and institutional investors can complement each other, with banks providing construction finance and institutional investors financing operational requirements to maturity
- Banking and institutional investors must not be forced to compete when that implies a decrease of supply – see NSFR

Appendix D: Calculation Assumptions

The estimated IRB risk-weights represented in charts and tables are approximate and indicative only, and do not represent the levels generated by any individual bank's models. Within the calculation of these risk-weights, an unsecured corporate LGD had been assumed at 40%.

Standardized Approach calculations are based on the 2014 Consultative Document for the proposed revised approach. Capital Floors have been assumed at 80% of that Standardized Approach.

Required capital levels have been assumed at 6.0% of Tier 1 under Basel II (representing a minimum of 4.0 plus buffers that were expected to be observed in some jurisdictions) and 9.5% under Basel III, consisting of the minimum Tier 1 Capital of 6.0%, plus the Capital Conservation buffer of 2.5%, plus the GSIB Level 1 requirement of 1.0%. This 9.50% figure has been used as the basis for the analysis inherent in Figure 2.

For the counterparties described in scenarios:

- Trade Finance, AA scenario describes an LC with a AA counterparty bank with CET1 9.5-12% and NPA<1%, from a Basel-compliant jurisdiction
- Trade Finance, BBB+ scenario describes an LC with a BBB+ counterparty bank with CET1 7-9.5% and NPA 1-3%, from a Basel-compliant jurisdiction
- 'Corporates' are all assumed to have revenue >€1b unless otherwise explicitly stated
- 'SMEs' are assumed to have revenue <€5m, and have the 0.7619 multiplier applied
- Well-rated Corporate assumed to be approx. A+ rated, with Leverage 1-3x
- Well-rated Corporate assumed to be approx. BBB+ rated, with Leverage 3-5x
- Sub-investment Grade Corporate assumed to be approx. BB- rated, with Leverage >5x
- The data on banks' Total Assets and RWA is from each bank's 2014 Annual Report.
- Within the Return on Equity calculations, the following assumptions have been made:
 - Target capital ratio equivalent to 10% of RWA
 - Cost: Income Ratio (or 'Efficiency Ratio') of 50%
 - Tax rate of 30%
- A weighted-averaging approach to the RWA calculation over the full tenor of the loan facility.
- Yield assumptions are based on selected bond yields and index data for bonds and CDS published by FT.com, Reuters and Bloomberg