The interaction between sovereign debt and risk weighting under the Capital Requirements Directive (CRD) - as an incentive to limit government exposures
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COMPILATION OF BRIEFING PAPERS

Abstract

This compilation of briefing papers is written by members of the Financial Services Expert Panel of ECON advising the Committee on financial services policy questions. It includes three contributions on the interaction between sovereign debt and risk weighting under the Capital Requirements Directive (CRD) as an incentive to limit government exposures, as well as a summary of the papers.
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SUMMARY OF PAPERS

The following summary presents the topic of the briefing papers followed by brief points on the main messages of the experts. Only selected main points are mentioned here. For a complete argumentation, please refer to the subsequent papers.

In the European Union, the Capital Requirements Directive (CRD\textsuperscript{2}) provides the legal framework for the weighting of risks by banks. It is based on the so-called "Basel II" framework.\textsuperscript{3} The structure of its predecessor, 'Basel I', stipulated that the minimum level of capital was determined according to the riskiness of the assets which the bank held. Each asset on the balance sheet of a bank was given a weighting between 0% and 100%, where 0% represented the safest assets such as government bonds and 100% the riskiest exposures such as corporate debt and unsecured personal loans.\textsuperscript{4} As banks became more sophisticated in their operations and risk management, work started on a new capital standard. It resulted in "Basel II" which better aligns minimum regulatory capital requirements with risk. Basel II establishes a more complex regime based on three "pillars". Pillar 1\textsuperscript{5} sets out the mechanism for calculating minimum regulatory capital related to credit risk, market risk and operational risk. Basically, banks are allowed to use their own models to calculate regulatory capital and are encouraged to establish sound risk management at all levels. Thus, within pillar 1, Basel II leaves banks a possibility to choose between different approaches:

1. **The standardised approach:**
   As in Basel I, it groups exposures into a series of risk categories. However, while previously each risk category carried a fixed risk weighting, under Basel II three of the categories (loans to sovereigns, corporates and banks) have risk weights determined by the external credit ratings assigned to the borrower.

2. **Foundation internal ratings based (IRB) approach:**
   Banks are able to use their own models to determine their regulatory capital requirements using the IRB approach. Under the foundation IRB approach, banks estimate a probability of default (PD) while the supervisor provides set values for loss given default (LGD), exposure at default (EAD) and maturity of exposure (M). These values are used in the bank's appropriate risk weight function to provide a risk weighting for each (type of) exposure.

3. **Advanced IRB approach:**
   Banks with the most advanced risk management and risk modelling skills can apply the advanced IRB approach, under which the banks estimate PD, LGD, EAD and M.

Under Basel I, sovereign debt was classified according to membership in the OECD: for OECD member sovereigns, the debt assigned risk weight was 0%, for non-members it was 100%. Basel II and the CRD recast required banks using the IRB approaches to assign and monitor the credit risk of individual sovereigns and to account for relevant risk differences (with different risk weights).

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\textsuperscript{2} Directive 2006/48/EC relating to the taking up and pursuit of the business of credit institutions (recast), OJ L 177, 30.6.2006, p. 1 together with Directive 2006/49/EC on the capital adequacy of investment firms and credit institutions (recast), OJ L 177, 30.6.2006, p. 201; both Directives were subsequently amended several times.

\textsuperscript{3} The Bank for International Settlements (BIS), based in Basel, was charged with establishing a framework for setting a minimum adequate level of capital each bank should have to hold to ensure their soundness and thereby protect the global financial system.

\textsuperscript{4} Tier 1 capital requirements: at least 4% of risk weighted assets (RWA) and total capital of at least 8%.

\textsuperscript{5} Pillar 2 is meant to identify risk factors not captured in Pillar 1, giving regulators discretion to adjust the regulatory capital requirement against that calculated under Pillar 1. Pillar 3 shall increase transparency of the banks' risk profile by requiring the disclosure of their risk management and risk distribution details.
However, banks using the standardised approach determine their risk weights according to Annex VI CRD: by default, the weight is 100%, but where an assessment from a rating agency is available, it is taken into account leading to a weighting ranging from 0% to 150%. Nevertheless, this CRD annex also stipulates that exposures to the European Central Bank and to Member States' sovereign debt in domestic currency shall have a risk weight of 0% - i.e. not taking into account other risk determining factors. Thus, banks using the standardised approach currently have no incentive via the regulatory set-up to differentiate between the sovereign debts (in local currency) of different EU Member States.

Against the background of the discussed changes to the banking framework and in particular the euro area governance and increasing sovereign debt within the European Union, the experts were asked to provide their views on the interaction between sovereign debt and risk weighting under the CRD - namely as an incentive to limit government exposures. Due to the strong link with rating methodologies, all experts discussed rating issues as well.

The reform of the Basel/CRD framework is currently high on the agenda. In Basel, discussions on an amended set-up of rules aimed at strengthening the capital base of banks ("Basel III") have nearly been finalised (see press release of 12 September 2010 by the Basel Committee on Banking Supervision). These discussions are reflected at European level in the imminent adoption of CRD III (with an amended framework for the trading book and securitisation) and the ongoing preparations for a further amendment to CRD (CRD IV). The European Commission has announced it will propose such amending measures at the end of 2010.

**Achim Kassow** identifies the risk-free status of certain EU sovereign debt as a remaining significant weakness of the CRD which has directly contributed to the development and severity of recent market turmoil. He suggests the re-evaluation of this approach, albeit by building upon the framework of transparent and risk-adjusted measures. He deems alleviating shortcomings in ratings to be necessary and advocates that amendments must be viewed in a larger context; taking a holistic view on the sum of new measures.

**Barbara Frohn** describes the likely impact of already discussed changes to the Basel/CRD framework and explores the intricacies of determining sovereign risk. She calls for improvements to rating methodologies and underlying government data and warns against unduly disincentivising banks to hold sovereign debt. In her view, the combination of such measures would provide a sufficiently protective framework.

**Marianne Kager** pictures the determining factors of sovereign default risk and the effects of the supervisory set-up on government debt. She stresses the importance of getting methodologies and risk models right, i.e. improving rating systems, and describes the consequences of CRD changes, both in terms of economic effects and as a political signal. Another approach to take into account could be the supervisory rules on large exposures.

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6 [http://www.bis.org/press/p100912.htm](http://www.bis.org/press/p100912.htm)
BRIEFING PAPERS

THE INTERACTION BETWEEN SOVEREIGN DEBT AND RISK WEIGHTING UNDER THE CRD
1) THE INTERACTION BETWEEN SOVEREIGN DEBT AND RISK WEIGHTING UNDER THE CRD AS AN INCENTIVE TO LIMIT GOVERNMENT EXPOSURES

by Achim Kassow
Member of the Board of Managing Directors Commerzbank AG

Abstract

This paper deals with the present set-up of the treatment of sovereign risk in banking regulation and evaluates certain shortcomings which may warrant further action. It focuses on inconsistencies of the current framework with the aims of Basel II which, in the author's view, have played a direct role in the current crisis as regards excessive build-up of (certain) sovereign debt in bank portfolios. In addition, the paper addresses the role of rating agencies and calls for stronger supervision of them in this context.
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Executive Summary

This briefing paper addresses the treatment of sovereign risk under the current framework of the Capital Requirements Directive (CRD) and evaluates, in light of recent events, those shortcomings which warrant further investigation (and potential action) in any future amendment of the CRD. The EU sovereign crisis has shown that the current Basel II framework, as implemented by CRD, retains a structural weakness of Basel I in its treatment of risk weights for Member States’ sovereign debt. The fixed risk weight of 0% for “exposures to Member States’ central governments [...] denominated and funded in the domestic currency of that central government” (CRD Annex VI Part 1 Par. 4) is inconsistent with the aims of Basel II and has, in our view, played a direct role in the excessive build-up of low-quality sovereign debt in bank portfolios as well as of high levels of debt in certain sovereigns. We see the need for a re-evaluation of this particular 0% risk weight in the CRD. In addition, we address in this paper the role of rating agencies in risk-weighting of sovereign exposures under Basel II and support measures for stronger supervision of rating agencies in this context.

1. Background

A rather long list of sovereign defaults and near-defaults over the past century — some fitting naturally into their economic contexts, others the often surprising consequence of sudden events — stands testament to the fact that the measurement of sovereign risk is as much art as science. In the end, only a comprehensive expert assessment of macroeconomic, fiscal and political conditions (in a regional and global context) is adequate for the individual evaluation of the risk of any one country.

In this context, developments over the past few months — particularly the deterioration of perceived sovereign risk even within the euro area — merely serve to underline how rapidly sovereign risk can grow and how difficult its consequences are to anticipate. As is fitting in the wake of any crisis, and with regard towards the significant levels of EU sovereign debt held by EU banks, supervisors and lawmakers have called for a fresh look at the adequacy of existing prudential regulation for dealing with the timely assessment and capitalisation of such risk.

This briefing paper addresses the treatment of sovereign risk under the current framework of the Capital Requirements Directive (CRD) and evaluates, in light of recent events, those shortcomings which warrant further investigation (and potential action) in any future amendment of the CRD.

1.1 Context of current discussions

Before considering the lessons for sovereign risk from the past few months and years as well as possible ways forward, it is important to call to mind the development of concepts regarding the regulatory treatment of sovereign risk and in particular the weaknesses of previous schemes.

Initial point of departure for prudential regulation was the treatment of sovereign risk under Basel I. Despite the colourful history of sovereign (near-)defaults in the 20th century, a simple structure based upon a single fundamental driver was sought in order to clearly delineate countries which (it was perceived) “could” and “could not” fail. Sovereigns were classified based upon their OECD membership and their debt assigned risk weights of 0% (OECD) and 100% (non-OECD) accordingly. As quickly became clear, this basic rule had two significant flaws:

1. its binary approach could not adequately reflect the very real differences in macroeconomic, fiscal and political stability and resilience between countries across the credit quality spectrum, and
2. its reliance on a discriminatory factor that is driven as much by political considerations as by any inherent risk meant that fundamentally false economic incentives — non-OECD member Singapore with risk weight 100% and OECD member Turkey with 0% being the two notorious historical examples — were unavoidable.

Basel II and the CRD directly addressed the first of these flaws. The internal ratings-based (IRB) approaches require banks to assign and monitor the credit risk of individual sovereigns on the basis of a granular rating scale, accounting for all relevant measured differences in risk with a bespoke risk weight per sovereign. Under the basic standardised approach, risk weights are driven by the assessments of rating agencies (External Credit Assessment Institutions (ECAIs)) where possible and are assigned to one of six classes (ranging from 0% to 150%) accordingly.

However, the second fundamental shortcoming of Basel I — the structural definition of the (local-currency) debt of most Member States as risk-free — has, for reasons not in line with the aims of Basel II, nonetheless been carried over into the new regulatory regime.

1.2 Successes and weaknesses of the current approach

While the overall shift to more granular risk weights was a critical step in and of itself, a great success of Basel II was surely recognising the fact that credit risks are too individual and too complex to be treated with cookie-cutter approaches. In the end, only bespoke risk assessments (credit ratings) which take into account the full range of relevant risk factors and drivers can lead to adequate capitalisation of exposure for solvency purposes. Importantly, while emphasising that bank-internal rating assessments should represent the primary instrument for credit risk assessment in large, systemically relevant banks, Basel II and the CRD also proposed that ECAI assessments — despite their many shortcomings — can, when no internal assessments are available, also make a valuable contribution to better risk discrimination. Where weaknesses remain in the role and supervision of rating agencies, these should be actively addressed by new regulation.

The aim of Basel II (or of any new regulation) for sovereign debt as for any other asset types was not — and should never be — to serve as a punitive instrument to be used to limit exposure to individual asset classes. Rather, an overarching aim of Basel II and the CRD framework was and continues to be the promotion of stronger risk-adjustment, the elimination of inconsistencies in regulation which foster distortion and arbitrage, and thus better alignment between regulatory and (historically more economic) bank-internal risk measures. In this sense, and despite the difficult financial environment which legislators, supervisors and banks currently face, we must view the current CRD as a significant success in this regard.

The new capital regime did not, however, fully break with the old. In order to ensure wide-ranging continuity in the prudential treatment of exposure to Member States which had previously enjoyed a risk weight of zero as OECD countries (without exposing them to the potential of risk weights greater than zero which might arise from internal or ECAI ratings), Article 89(1)(d) of the CRD (amended by Directive 2009/111/EC, or “CRD II”) and Annex VI Part 1 Par. 4 assign a risk weight of 0% for “exposures to Member States’ central governments […] denominated and funded in the domestic currency of that central government.”

This persistence in sustaining risk-free status for certain sovereign debt within the Eurozone remains a significant weakness of Basel II and the CRD which has, in our view, directly contributed to the development and severity of recent market turmoil.
2. Main Issues

Consequently, any consideration how the CRD might be improved on the individual risk-weighting of sovereign debt should, in our view, take three key points into account:

1. any amendments to the CRD should continue building upon and strengthening the focus of Basel II on transparent and fully risk-adjusted measures unencumbered by other objectives; to this end, the one-size-fits-all 0% risk weight approach for certain sovereign debt of Member States must be re-evaluated;

2. alleviating the evident shortcomings in ECAI ratings must continue to be a strong focus of new regulation;

3. potential amendments to sovereign risk under Pillar 1 must be placed into the greater supervisory context of ongoing discussions in Basel and within the EU (liquidity ratios, leverage ratios, capital ratios, etc.), taking a holistic view on the sum of new measures.

We now examine these key points in greater detail.

2.1 Enhancing true risk-based measurement of sovereign risk under the CRD

The recent sovereign crisis in Europe has not only been the result of market forces; both the course and the severity of the crisis can clearly be tied to incentives set by current regulation of the “riskiness” of the sovereign debt of Member States. For countries within the euro area, the risk weight of 0% which is granted under Annex VI Part 1 Par. 4 of the standardised approach and (via the IRB Partial Use rules) extended to the internal ratings-based approaches (essentially equivalent to a mutual exemption from capital charges for sovereign risk) is, in our view, inconsistent with the spirit and aims of Basel II.

In practice, this risk weight exception means that the regulatory capital requirement for the (Euro-denominated) sovereign portfolio of a French or German bank draws no distinctions between the debt of the home Member State and, say, the debt of Spain or Greece or Italy. Or to put it succinctly: European banks do not have to hold capital when they buy a government bond from most of their neighbours, even if this bond was (until a recent ad hoc decision by the ECB) not even of sufficient quality to satisfy ECB collateral requirement criteria.

While market and ECAI behaviour have arguably served to amplify the (perceived) default risk of some Member States, it has nonetheless become clear that — from a risk perspective — differences do indeed exist between the fiscal stability of individual countries within the Union. Lacking an ability to “print money” in order to service debt in a pinch, members of the monetary union must resort e.g. to increased taxation or to support from the Union, but even such support mechanisms are no longer seen as infallible safety nets. The market makes this grimly clear: one needs only to look at the great spread differences on European government debt. The recent shift of Greece to non-investment grade status (S&P BB+ as of April 2010) is a prime case.

The regulatory incentive which results from the 0% risk weight is apparent: banks in Member States are effectively encouraged to place their most liquid assets into the worst possible government debt, maximising the yield with a regulatory capital requirement of zero.

In turn, for many willing sovereigns, it was precisely this ready supply of cheap funds which allowed them to build upon such dangerously high levels of debt in the first place.

The plausibility of the 0% risk weight exception must be called into question. We believe that for countries other than the home Member State, the only basis for a risk weight of 0% should be a deep and independent analysis.
Internal rating systems go to great lengths to consider the dynamic relationships between GDP growth, levels of income and inflation and development indicators (among many other factors) and, on this basis, do come to the conclusion that the risk of sovereign default over a 12-month horizon is effectively negligible in individual cases. The wide range of factors which warrant such a conclusion cannot, however, be effectively condensed into a sensible regulatory criterion for risk-free debt.

We believe that the CRD’s mutual recognition of 0% risk weight across Member States without recourse to internal or external ratings must be re-evaluated, and any inconsistencies with Basel II’s aims regarding risk sensitivity must be eliminated.

Primary effect of an elimination of mutual recognition of the 0% risk weight would be an increase in the cost of issuing new debt for a small number of Member States which do not qualify for the 0% risk weight directly on the basis of their credit rating (e.g. “AAA”). This results from the fact that the banks of Member States would likely remain an important investor in this debt but would demand higher yields, given that they would now be required to hold capital against this no longer “risk-free” exposure. For banks, in turn, this would bring regulatory requirements for these exposures in line with existing internal models. Overall, we view this as a positive contribution to stability.

2.2 The role of rating agencies as a determining factor for risk weights

Public and regulatory discussions of possible lessons from the recent crises (already beginning with the subprime crisis) have placed particular emphasis on a review of the role of rating agencies and other ECAIs as a basis for prudential supervision.

In Toronto, the G20 nations broadly agreed on the development of a new oversight framework for ECAIs. Already in 2008, the Commission began its consultation on the issue of rating agencies (“Tackling the problem of excessive reliance on ratings”, July 2008). The seminal BCBS consultative document “Strengthening the resilience of the banking sector” (BCBS CP 164, December 2009, §§ 178ff) also highlights many issues surrounding reliance on rating agencies.

The list of criticisms is long, and many are not without merit. It is claimed, for instance, that agency sovereign ratings

- tend to digest existing market information rather than having unique access to information on sovereigns;
- serve to fuel pro-cyclicality in the market as a result of this lag (by merely amplifying market trends) and trigger “herd behaviour” in banks which rely exclusively on external risk assessments for their sovereign positions;
- tend to be reluctant to cause large adjustments in their ratings and therefore delay the timely provision of information to the market; and
- suffer from moral hazard and lack of independence intrinsic to their business models arising from compensation for services, often including advisory services.

The truth in aspects of all of these criticisms have become particularly apparent in the context of European sovereign debt over the past months. We indeed have clear cause to revisit the role of rating agencies in prudential supervision, but this discussion must be measured.

While European discussions deal with closer supervision of rating agencies, enhancement of transparency, removal of moral hazard and even the potential creation of a new publicly run European credit agency for sovereign ratings, current regulatory thinking in the USA is less nuanced.
The passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act in July 2010 directly disputes the potential of ECAI assessments to add value to prudential supervision. Section 939A of the Bill requires US agencies to eliminate supervisory requirements that refer to or rely upon credit ratings in general (and indeed therefore upon ECAI ratings in particular). We believe that these proposals run wide of the mark. While there are already voices in the US regulatory community (notably the FDIC) calling for revision of the Dodd-Frank Bill to restrict the relevance of Section 939A to securitisations and structured products, we believe that the potential wider impact on other jurisdictions must be observed carefully. Current US proposals threaten to undermine the key successes of Basel II in European regulation, and while alignment across international jurisdictions has always been a key prerequisite to full international implementation of Basel II, it must necessarily differentiate between progressive measures and a return to the world of Basel I.

Nonetheless, the US discussion is instructive, for, among other things, it highlights the range of plausible alternatives to the use of external sovereign ratings where necessary within the CRD framework. Currently published for consultation are alternative schemes by which an individual risk weighting of exposures (including sovereign debt) might be achieved without recourse to such rating assessments.

For sovereign risk, it quickly becomes apparent that the range of sensible alternatives is limited. Measures actively under discussion represent, in the end, either a return to old (discredited) rulemaking or amount to an underestimation the complexities of sovereign risk measurement. They naturally include many individual drivers of internal (and ECAI) sovereign rating assessments:

1. organisational membership (e.g. BCBS or G20),
2. market indicators (e.g. spread movements),
3. financial and/or economic indicators and ratios, or
4. track record of default or restructuring.

The first option merely represents a full return to the abstract oversimplification of Basel I. In turn, economic and/or market indicators are, taken individually, insufficient indicators of credit quality given the broad range of relevant economies and their different levels of development. Taking an indicator such as GDP growth for example — an important explanatory variable in any sovereign rating model — to see why such simple factors by and of themselves cannot suffice as discriminants between good and poor sovereign risk: for while GDP growth of, say, only 3% might be considered strong for a developed economy, it may well be a worrying sign of burn-out for an emerging regional powerhouse.

In the end, the potential alternatives to use of internal (and, where necessary, external) ratings for the measurement of sovereign risk are simply no alternatives at all. True risk-sensitive measurement of sovereign risk requires comprehensive individual analysis. Bank-internal ratings are, from a supervisory perspective, clearly preferable, but since Basel II and the CRD must also offer a simple approach to internal ratings-based methods for use by smaller banks for whom the IRB approach is unfeasible, the recognition of external assessments for this purpose represents, on balance, an improvement of prudential supervision over Basel I and similar alternative schemes.
Our unequivocal support for the internal ratings-based approaches notwithstanding, we believe that the current limited use of ECAIs within the Basel Framework has, for measurement of sovereign risk, no acceptable alternative. We support the efforts of the EU to license and monitor ECAIs in an effort to improve rating quality. Further, we believe that the conditions under which ECAIs can offer auxiliary advisory services should be closely regulated (across all asset classes). These measures will not only help advance prudential regulation but also serve to support the stability of markets in general and to reduce pro-cyclical effects.

We further believe that any proposals to create a publicly run European Rating Agency for sovereign debt could further enhance market transparency and stability and are therefore worth exploring. Here too, however, addressing the issues of independence and timeliness of information will be critical.

### 2.3 Taking a holistic view on any adjustments to the CRD

As discussions regarding the Basel Accord and CRD continue to advance and develop the potential to generate wide-reaching, complex changes in regulation across a wide range of topics (capital levels, risk measurement, liquidity and leverage, to name a few), we believe that it is ever more important for rule-makers to focus on the aggregate impact of all proposals in play as well as on their macro-prudential consequences.

In particular, any amendment to the levels of individual credit risk weights (such as a potential elimination of the static 0% risk weight for exposures to Member States’ central governments denominated and funded in the domestic currency of that central government or the proposed increase in asset value correlations for some financial institutions by 25%) should not be taken in isolation of any other asset classes. Empirical studies show that the calibration of risk weight levels across asset types in the banking book (and in relation to capital levels for the trading book) was fixed, with the introduction of Basel II, at unnecessarily punitive levels for certain asset classes (e.g. retail lending) in order to safeguard overall historical levels of capital. Remaining structural inconsistencies in risk weighting in the framework can only be addressed successfully by taking a holistic view to any changes made to individual asset classes such as sovereign lending.

### 3. Proposed points for action

In summary, and with regard to the risk weighting of sovereign debt in the CRD, we propose and/or support the following points for consideration in future amendments:

1. Re-evaluation of the CRD’s mutual recognition of 0% risk weight across Member States with a view towards stronger use of internal (or external) ratings and towards elimination of any inconsistencies with Basel II’s aims in this regard.

2. Continued strong focus on tighter supervision as well as rules of conduct for rating agencies; consultation of a proposal to create a new European rating agency for sovereign risk.

3. Careful review of the overall balance of measures when changing single points of the CRD framework (such a point 1 above) to ensure that imbalances in risk weights across asset classes are not exacerbated and that no potential for new arbitrage is created.
References


2) THE INTERACTION BETWEEN SOVEREIGN DEBT AND RISK WEIGHTING UNDER THE CAPITAL REQUIREMENTS DIRECTIVE (CRD)

by Barbara Frohn
Managing Director, Global Head of Internal Validation and Member of the Public Policy group in Grupo Santander S.A.

Abstract

Concerns about an impending sovereign debt crisis have provoked a discussion about sovereign debt held by banks and the capital treatment of sovereign debt in the Capital Requirement Directive. This paper describes the intricacies of sovereign risk and draws the conclusion that the combined effect of Basel II and Basel III with some improvements in the area of rating methodologies and government data integrity are expected to provide sufficient protection. The paper further warns against unduly disincentivising sovereign debt holding by banks.

7 The findings, interpretations and conclusions expressed in this paper are entirely those of the author. They do not necessarily represent the views of Grupo Santander S.A. and its affiliated entities.
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Executive Summary

A looming global or European sovereign debt crisis impeding on economic recovery with possible spill over effects on financial institutions causes concern on both sides of the Atlantic and was high on the agenda of the August 2010 Jackson Hole meeting of central banks. The realisation that not only emerging markets but also developed economies can be hit by unmanageable sovereign debt represents a shocking scenario to policy makers.

The possibilities of such a scenario manifesting itself raises the question of whether forthcoming regulatory reforms should include specific measures for sovereign debt holdings in financial institutions.

This paper describes sovereign risks incurred by banks vis-à-vis the current European risk based rules, i.e. the Capital Requirements Directive (CRD), and assesses how post-crisis regulations will impact sovereign risk taking by banks in the form of increased capital and reserves as well as enhanced scrutiny by credit rating agencies and supervisors.

The paper establishes that existing and newly imposed regulation already provides supervisors and regulators with a more than adequate tool set to enforce prudent sovereign risk management, albeit provided that data integrity issues are resolved, rating methodologies slightly refocused and fine tuned, and conflicting incentives taken away.

With alternative capital treatments currently on the table that dismiss external credit rating agencies the banking sector may well be worse off.

The author further observes that for both banking and trading books banks have a legitimate need of government debt holdings, and are instrumental in the successful launching of sovereign debt issues. The author propagates that under all approaches compulsory liquidity buffers and legal reserve requirements are exempted from capital risk weighting as well as exposures on which there is a consensus view that they are risk free.

In adverse economic circumstances, policy makers should be especially wary of grasping for quick fixes or measures in isolation that may inadvertently impair financial stability instead of improving it.

Introduction

In the aftermath of the financial crisis and in the context of slowing economic recovery the massive increase in public debt in many advanced economies has given rise to speculations and fears about a mounting sovereign debt crisis, especially hitting the euro area but potentially impacting all major economies.

Over the past decades billions of euros have been invested around the world in the government debt of developed countries on the implicit understanding that this sovereign debt was risk free. The realisation that this was not the case has lead to much higher volatility and less predictability in the financial markets. It also raises the question whether current risk based capital standards such as the Capital Requirements Directive (CRD) adequately capture the risks incurred by European financial sector institutions on their sovereign exposures, and whether (excessive) holdings of such exposures should be disincentivised or capped.

European financial sector institutions - insurance companies, funds and banks - are large holders of sovereign debt, the latter as a logical consequence of their (trade) business, their presence in - often - multiple countries as well as for prudent liquidity and Asset & Liability management purposes. Whilst universal banks hold the majority of sovereign exposures in their banking books, investment banks also hold sovereign debt for active trading and hedging purposes.
This paper aims to evaluate the current treatment of sovereign exposures in the CRD and also describes how banks using the internal ratings-based (IRB) approach (IRB banks) have implemented the regulation in practice. The paper further assesses how 'Basel III' and recent guidelines of the Committee of European Banking Supervisors (CEBS) may impact on its actual working. It further deals with the question whether disincentivising or limiting the holding of sovereign debt by banks is necessary and desirable. Lastly, this paper will issue concrete recommendations for improvement of the CRD approaches to sovereign exposures.

Statements in this paper are not supported by aggregated EU bank exposure data and should therefore not be interpreted as definitive empirical evidence. Rather, they should serve to provide a preliminary analysis of agenda topics for a fruitful public-private sector dialogue about the quantification of risk contained in sovereign exposures in banks and commensurate capital to be held against such exposures. This discussion should preferably be embedded in the discussion about the use of external ratings in risk based capital standards and about the possible creation of a new European credit rating agency. The author recommends such discussion to be held in close co-operation with the US regulatory agencies who recently initiated a dialogue with the private sector seeking comment on standards of creditworthiness (other than external credit ratings) that may be used for purposes of regulatory capital computation.

1. The present situation - the CRD: theory and practice

1.1 The current regulatory framework:

The CRD treatment of sovereign exposures encompasses the following components:

- The compulsory use of external credit ratings in the **standardized approach for credit risk**: Under the CRD standardized approach, a banking organization must assign a risk weight to a sovereign exposure based on the external credit rating of the sovereign by one or more credit rating agencies and/or eligible export credit agencies. Risk weights are not assigned on a one-on-one basis; instead, external ratings are grouped together in six separate classes. Exposures are defined on the basis of the characteristics of the exposure types using a so called 'credit conversion factor' and therefore not always taken at face value. Sovereign exposures are hardly ever collateralised.

- Under this approach, sovereign exposures are 0% risk weighted ('exempted') in two separate cases: within the European Union and in certain non EU countries, if the exposures are denominated and funded in the domestic currency of the sovereign counterparty in question; for other sovereign exposures, if the external rating is equal to, or higher than, AA-.

- **IRB banks** are permitted to develop, for credit risk regulatory capital and expected loss computation, their own internal credit rating models and estimate their own risk ('probability of default' (PD); IRB banks in addition 'exposure at default' (EAD) and 'loss given default' (LGD)) parameters. Subject to meeting certain conditions, IRB banks may request supervisory approval to exempt the sovereign exposure class from IRB thus reverting to the standardized approach. Sovereign portfolios are identified as so-called 'low default portfolios' implying certain additional modelling requirements must be met (read: additional conservatism applied) in the absence of robust statistical data.
• Contrary to PD models for other types of borrowers, there is no minimum PD requirement for sovereign counterparties. However, banks implementing a de facto 0% risk weighting by putting either PD or LGD at 0% for certain types of sovereign exposures or for certain sovereign counterparties are generally not viewed positively by supervisory authorities.

• The aforementioned exemption for sovereign exposures is replicated in the specific risk part of the market risk rules.

• Under the large exposures regime, a bank must report the aggregate (trading and banking book) exposure to one single counterparty (whether bank, corporate or sovereign) exceeding 10% of its own funds to its supervisors. In addition, single counterparty exposures are capped at 25% of a bank's own funds except in the case of sovereigns where exposures to one individual sovereign counterpart are not capped if the exposure to the sovereign in question is 0% risk weighted under the standardised approach.

• Banks are not only impacted by the above mentioned capital rules, but equally hold capital against foreign exchange (fx) and translation risks. The experience learns that in periods of increased sovereign (event) risk, foreign currency volatility and inflationary and devaluation effects immediately lead to substantially higher capital requirements. Especially banks with sizeable presence in foreign countries feel the capital impact of heightened volatility and of so-called 'fx structural/translation' risks.

1.2 Treatment of sovereign exposures under the newly proposed regulatory regime

Even though the treatment of sovereign exposures has not explicitly been subjected to change in isolation, the BIS and European Commission proposals8 of December 2009 in conjunction with guidelines issued by CEBS directly or indirectly impact on the way sovereign risk is measured and capital requirements determined, and thus can be expected in future to have reinforced banks' resilience in times of sovereign crisis:

• In the trading book, banks using internal specific risk models in the trading book must calculate an incremental risk capital charge (IRC) for credit sensitive positions which captures default and migration risk at a longer liquidity horizon; such IRC models must appropriately reflect issuer and market concentrations. This implies that, other things being equal, a concentrated portfolio should attract a higher capital charge than a more granular portfolio. Concentrations that can arise within and across product classes or exposure types under stressed conditions must also be reflected.

In concrete, this means that even though Greece was bailed out and thus did not default, regulatory capital on both banking book and trading book exposures will reflect the higher risk it represents due to rating migration being captured in IRC and in credit rating models.

• In the 'Basel III' proposals a prominent role is given to liquidity buffers. Even though the scope of eligible instruments contained therein has been expanded in the 26 July 2010 press release by the Basel Committee, government securities of developed countries will mandatorily represent a large portion of banks' future liquidity buffers.

8 Generally dubbed ‘Basel III’ or ‘CRD IV’ and hereafter ‘Basel III’, see references.
• Additionally the Basel III proposals present a suite of measures aiming to avoid procyclical amplification of financial shocks in the banking system and financial markets. Capital conservation and countercyclical buffers, forward looking provisioning and the imposition of downturn PDs will, as a consequence, dampen the impact on banks of future sovereign crises; it is more than likely that countercyclical buffers and provisions will have been released by such time.

• The draft CEBS guidelines on concentration risk of 11 December 2009, together with the revised CEBS guidelines on stress testing of 26 August 2010 explicitly specify how banks must manage concentrations, develop stress test scenarios using severe but plausible events and, on the basis of robust stress tests, identify, both on an individual and integrated portfolio basis, how risk drivers affect total capital requirements. As such the guidelines provide supervisors with the appropriate toolset to enter into a meaningful dialogue with their banks about the risks embedded in holdings of sovereign exposures, especially where these are deemed excessive or unduly risky.

• In March 2010 CEBS issued draft revised guidelines on the recognition of external credit assessment institutions (ECAs). The Basel III proposal also refers to the incorporation of the IOSCO Code of Conduct Fundamentals for Credit Rating Agencies into the eligibility requirements to use credit rating agency assessments. With these proposals, credit rating agencies must satisfy an extensive list of criteria before being admitted as eligible credit rating agency for the purposes of regulatory capital computation.

• The introduction by CEBS of the ‘single rule book’ aimed at minimizing national discretions is expected to reduce the effects of uneven implementation of the CRD, among others, the conditions set by Member States related to the eligibility of sovereign exposures for the aforementioned 0% risk weighting rule.

1.3 Practical implementation of the CRD and challenges for IRB banks

External sovereign credit ratings as used by banks applying the standardized approach

Studying credit rating agencies’ rating methodologies for sovereign debt issues, what strikes is the abundance and completeness of risk factors used in the (calibration of the) models; checklists of sovereign rating criteria literally contain over 100 different entries. The rating methodologies look at a broad array of economic, fiscal, financial and political factors in order to assess the government’s ability and willingness to service its debt obligations. Nevertheless, credit rating agencies openly acknowledge that sovereign rating methodologies are more ‘art than science’ and therefore they tend to pay increasing attention to the durability of government policy and policy makers as well as a country’s ability and willingness to make real sacrifices if need be. In short, expert judgment forms a substantial part of sovereign rating methodologies which explains why credit ratings may differ between credit rating agencies and why between credit rating agencies rating migration is almost never simultaneous.

Equally striking is the evolution over time of sovereign credit ratings models; reflective of the lack of robust statistical data and changing geopolitical conditions, sovereign rating methodologies are still work-in-progress, presumably more so than is the case for corporate and financial institution counterparties (albeit less so than for structured products).

Credit rating agencies’ stated rating philosophies indicate that they take a longer term forward looking or even through-the-cycle view of an issuer to prevent rating changes that are based solely on normal cycles in the economy. They explicitly do not take factors such as pricing or market risk into consideration.

Investment and risk management decision-making processes should therefore clearly not focus solely on external ratings.
**Internal rating as used by IRB banks**

Even though for the establishment of internal sovereign rating models the same data issues exist, there are fundamental differences between internal and external rating processes:

- Both for model construction, calibration and internal validation, banks tend to take the information of more than one credit rating agency in consideration and freely tap other relevant external sources (OECD, International Monetary Fund (IMF), World Bank) as well.

- Most banks use *market* data (i.e. CDS spreads) to segment their portfolios or calibrate their PD estimates.

- Given the lesser impact of individual bank decisions to downgrade a particular sovereign, it is often seen that internal rating migration precedes external rating migration, thus serving as effective early warning signals. In the case of external ratings, political implications of rating migration are even more pronounced as ratings of other obligors within the country are generally impacted by a so called *sovereign rating ceiling*.

- Even though internal bank data history does not go back as far as external rating agencies, World Bank or OECD data bases, internal bank default and loss data is not limited to public debt issues (bonds) but extends to bilateral and unlisted sovereign exposures. This at least allows banks to establish a more product based, exposure type oriented estimation of sovereign defaults and losses.

- The CRD stipulates that IRB banks must internally validate and back test the internally developed models, such internal validation is in turn to be validated by home and host supervisors. This in practice leads to enhanced scrutiny –and sometimes challenge- of sovereign models stretching to the risk factors deployed and their respective weights in the models and to conservatism being applied in PD and LGD estimation.

This said, the estimation of sovereign risk parameters, especially of LGD and EAD, remains challenging, in particular for domestic currency exposures for which data are scarce. Meaningful risk differentiation is done by most banks based on scarce historic data to the extent available in combination with expert judgment.

To determine LGD and EAD for sovereign exposures, the issue is that there are few data and losses have been either relatively high or low, which makes any average more uncertain than otherwise. Some banks distinguish between domestic currency LGD and foreign currency LGD basing themselves on historic provisioning levels. Some banks also use country groupings for LGD determination based on GDP size, GDP per capita, foreign debt/exports data. Other banks rely to a large extent on external sovereign recovery rate studies.

Moreover, safety nets provided by IMF and the likes prevent real sovereign defaults from happening. Not only does this mean that the costs in the end are not borne by senior debt holders, it also implies that cases such as Greece might not end up in sovereign default and loss statistics.

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9 Justification of this approach lies in the assumption that LGDs tend to be lower for sovereigns whose creditor base will be larger and more dispersed, both of which will increase the reluctance of those creditors to accept large loss rates in the case of default. A generally more active interference of (foreign) creditors and multilaterals in the restructuring negotiation process would lead to lower loss rates. LGDs tend to be lower for countries with low income per capita. Poor countries often benefit from political and social pressure to exercise significant remission. LGDs tend to be higher for countries with higher foreign debt/export ratios and debt restructuring tends to focus on reducing debt service to sustainable proportions in terms of exports as exports generate the foreign income needed to service the foreign debt.
2. Actual sovereign risks incurred by banks

2.1 The intricacies of sovereign risk

In order to assess to what extent sovereign risk and associated capital measurement should be treated differently compared to risks incurred in other types of exposures and trading activities, it is worthwhile evaluating the specific features of sovereign risk.

Risk wise, sovereign exposures held by banks differ from corporate or retail exposures in various ways:

- Under the doctrine of sovereign immunity, the repayment of sovereign debt cannot be enforced by the creditors which is thus subject to compulsory rescheduling, interest rate reduction or even repudiation. Creditors simply do not have the legal option to enforce that assets are sold to repay debt.

- In addition, like is the case of exposures to bank counterparties where 'moral hazard' traditionally plays an important role, sovereign risks cannot be quantified in isolation given possible bail out scenarios. Moreover, the probability of bail out scenarios to be put in place is hard to predict as they are event driven and defined on a case-by-case basis, a.o. due to contagion effects deemed overly detrimental to market stability and/or global or regional economic recovery.

- Sovereigns may be selective in the types of liabilities on which they default. A sovereign may elect to default on foreign currency but not on local currency or vice versa. To reflect this, there are separate sets of internal and external sovereign credit risk ratings for domestic and foreign currency obligations respectively, with differing associated default probabilities. For obvious reasons, domestic currency defaults, although increasing in number, are still much less frequent than foreign currency defaults.

Sovereign defaults exhibit clear correlation with bank crises

Financial sector bail out scenarios often coincide, or even trigger, periods of severe recession eventually provoking sovereign defaults. Due to direct exposures of banks to its local government in combination with high inflation and reduced government spending (sometimes in combination with depreciation of the domestic currency impacting on corporate and retail customers) sovereign defaults in turn may provoke bank crises. Governments must eventually deleverage precipitating deeper private sector crises. This vicious circle and strong interdependence between the public and financial sector is hard to capture in internal or external rating and portfolio models and in stress testing exercises.

Contagion effects of sovereign defaults are also strong between sovereigns

Additionally, given that sovereign portfolios are typical examples of 'low default portfolios' with little available data and, according to academics, the low predictiveness of past cases for the future, deploying statistical modelling approaches to measure risks is rather challenging.

Therefore finding the correct measure of risk and capital both for 'normal' and (systemic) stress situations proves difficult, and academics and public sector entities remain divided over the main sovereign default drivers and the appropriate regulatory capital treatments.
2.2 Sovereign exposures in banks

The sovereign exposure class covers all claims or contingent claims on a central government or central bank. Erroneously the perception lives that banks' sovereign exposures mainly consist of sovereign bonds purchased solely for trading purposes. In reality however, the majority of sovereign exposures resides in a bank's banking book, and depending on

- the legal reserve requirements of the jurisdiction in question;
- the nature of a bank's business and business model;
- the size of its presence in the jurisdiction in question;
- the role of the bank in (domestic/host country) capital markets;
- the currency in which the exposures are denominated vis-à-vis the currency of the consolidated banking group;

Sovereign exposures may take many different forms and sizes.

Trade banks active in emerging markets traditionally have a sizeable amount of direct and indirect (i.e. state guarantees) sovereign exposures on their books to support large trade and project financings.

For liquidity and asset & liability management purposes:

- banks have to comply with legal reserve requirements in each jurisdiction in which they act as deposit taking institutions (often in the form of nostro accounts with the central bank). Research shows that hitherto no sovereign has ever defaulted on legal reserve requirements.
- banks elected, and under the new rules will be required, to hold high quality treasury bonds (until recently deemed the most liquid instruments), also with a view to be used as eligible collateral with the ECB or equivalent if need be.

In this respect, noteworthy is that banks that display large geographical diversification, a distinct success factor during the present crisis, by definition must have substantial sovereign debt exposures in their books.

Banks furthermore assume the role of arranger in sovereign bond issues in which capacity they also have a market-making role. Large international banks with their wide-spread networks and placement power have contributed positively to the successful placing of foreign currency denominated government bonds.

Furthermore, in certain jurisdictions, the purchase of local government debt has been a precondition for allowing foreign banks to play a role of significance in the local capital markets. Such 'moral obligation' has in some cases lead to banks holding sizeable amounts of sovereign bonds.

However, given (until recently) unattractive yields, most banks tended to keep their holdings of then deemed - high quality sovereign debt to a minimum preferring to deploy their balance sheet to grow their outstandings to corporate and retail customers.

Under the influence of new liquidity and leverage ratio regulations as well as recent ratings and price volatility of sovereign bonds, banks can be expected in future to

- make a more in depth assessment of the longer term quality of their sovereign exposures serving as liquidity buffer and potential collateral;
- carefully consider their optimal balance sheet structure and asset composition.

Cautiously put, the above demonstrates that speculation has not been the driving force behind a large portion of banks' sovereign exposures.

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10 For the sake of simplicity, disregarded in this paper are exposures on sub-sovereigns and public sector entities (PSEs)
**Trading book versus banking book**

As indicated above, the majority of sovereign debt held by banks resides in their banking books. Under International Financial Reporting Standards (IFRS) accounting rules, banks have to adjust the value of sovereign bonds held in the trading book according to changes in market prices. For government debt held in the banking book, lenders must write down the value only if there is serious doubt about a sovereign's ability to repay its debt in full or make interest payments. Only in the trading book there are significant write downs as spreads widen and the probability of default rises.

However, as pointed out by Blundell-Wignall and Slovik (July 2010), also in so-called 'gone concern' situations (i.e. bank failures) a resolution authority would potentially realize latent losses in asset sales in the market to repay depositors and creditors *de facto* taking away the difference between banking book and trading book accounting.

Also noteworthy is that the ('going concern') distinction between banking and trading book does not apply to many other European investors in sovereign bonds active in the global debt markets. These are subject to immediate value adjustments due to changes in market values in government bonds.

### 3. Drawbacks and regulatory gaps

#### 3.1 Sovereign defaults

In order to be able to assess the pros and cons of using external ratings and external rating methodologies, it is important to determine what have been the main drivers of sovereign defaults and assess what is the predictive value of such drivers.

A quick and dirty comparative study of research on sovereign defaults shows that researchers in this area are not unanimous in their conclusions; determining the likelihood that a country will suspend or renegotiate certain types of debt evidently remains challenging.

This is partly due to the fact that past crisis events (Tequila crisis, Asia crisis, Argentina, Dubai, PIIGS countries, ... ), did not share the exact same drivers and that debt forgiveness may be implicit through artificially forced down interest rates whilst not materializing in official statistics (Japan).

Researchers are however unanimous in stating that measuring the likelihood of default by ranking countries according to a simple debt to GDP ratio is useless.

Cited as contributing factors to sovereign defaults are a.o. balance sheet structures, a government's dependence on volatile revenues, composition and investment purpose of investor base, the way in which leverage among investors tie different markets together. Chancellor (2010) even found that the best predictor of default is actually past default.

Quantifying probabilities of defaults is even more complicated given that countries conceal with great effect their real (contingent) obligations.

All of the aforementioned main contributing factors are included in external rating methodologies and should therefore in theory not lead to the conclusion that there are major methodological deficiencies. Since credit rating agencies do not publish how the different drivers and risk factors are weighted in their models, this can however not be certified.
3.2 Drawbacks of the current regulation

During the crisis, reliance on the assessments of credit rating agencies to determine minimum regulatory capital to be held by banks has come under scrutiny by politicians who take the view that credit rating agencies failed to adequately capture the risk in securitisations. More recently, politicians have taken the view that credit ratings have also failed to serve as true warning signals in the sovereign debt crisis in the Euro area risking, in addition to contributing to, procyclicality effects and thus potentially eroding bank capital.

The widely spread criticism can be broadly summarized in three (interrelated) categories:

- fundamental criticism on rating methodologies deployed, a.o. the respective weights given to individual risk factors and economic ratios;
- criticism directed at timing ('too late/too early') and severity ('too much/too little') of rating actions;
- conflict of interest: credit rating agencies’ revenues stemming from the counterparties they rate.

Leaving it up to credit rating agencies to defend themselves against such allegations, it should be reiterated that a sovereign rating is based in part on subjective assessments of government policies and the effectiveness and sustainability of those in the longer term which by definition makes a sovereign rating debatable. Nevertheless there are a couple of observations that can be made based on recent events.

First, from an outsider’s point of view it seems that the current external (and possibly internal) ratings processes may have to put more emphasis on exogenous factors, e.g. likelihood of external interference or bail out. Equally striking is the apparent lack of differentiation between domestic currency ratings whereby the sovereign in question maintains full control over its central bank and foreign exchanges and "domestic" currency ratings for sovereigns in the euro area that cannot choose the route of inflation or devaluation.

Furthermore, since recent studies seem to suggest that the default drivers or the individual driver thresholds may differ between developing and developed markets this should perhaps be explored more fully by the credit rating agencies. In this context, due to the sheer size of developed markets sovereign debt issues, a crucial factor seems to be the timing of sovereign debt maturities: refinancing problems due to recessionary or market dynamics or due to abundant offer seem predictable, at least up to a certain extent.

Lastly, one may wonder about the reliability of ratings based on 'unaudited' data and about the true through-the-cycle nature of external credit ratings.

As indicated previously in this paper (i.e. Section 1.3), internal ratings models, even though having to cope with the same data and methodological challenges, have distinct advantages as well, and are continuously being scrutinized by internal and external independent parties. Evidently, banks do not limit themselves to manage sovereign and associated country risks by way of sovereign rating models. Internal economic capital models and stress testing exercises capture, aggregate and integrate many risks related in one way or another to sovereign risks or sovereign events: transfer, migration, concentration, counterparty credit, event and market risks; moreover, the vulnerability of corporate and bank counterparties to sovereign defaults and other country events is embedded in their respective default estimates. Lastly, international banks take full account of the eventuality of sovereign risk events increasing (the volatility in) structural foreign exchange risks in setting their capital targets. Hence, the scope of inherent sovereign risks capture is much larger than just sovereign ratings.
Alternatives currently on the table

According to a consultative paper issued by the US Agencies in August 2010\textsuperscript{11} there are several alternative methodologies that could be used to risk weight sovereign exposures ranging from (1) membership of an organization such as the G-20 or Basel Committee or participation in the IMF New Arrangements to Borrow; (2) the former in combination with credit spreads or past restructuring events, (3) country risk classifications generated by OECD or the World Bank, to (4) differentiation based on one or more key ratios.

Besides the fact that these proposals essentially eliminate the notion of risk sensitivity and capital commensurate with the inherent risk of an exposure, it is a daunting prospect when one considers the implications of an even bigger conflict of interest when public entities which are at the same time interested stakeholders decide over the fate of individual sovereigns or even have a powerful tool at their disposal to redirect the markets.

After all, one of the lessons learned (see namely Section 3.1) has been that sovereign default probabilities are anything but easily predictable and oversimplification of capital measurement therefore not recommendable.

Another potential drawback of such approaches is excessive reliance on a single third-party assessment of risk, especially risky given the expert judgment employed in sovereign rating models.

It is rumoured that the US Agencies themselves do not feel entirely comfortable with their initial proposal for the exact same reasons.

4. Sovereign risk and capital measurement in the future

Far from denying that the use of external and, to a lesser extent, internal, sovereign ratings in prudential regulation has its limitations, dropping the current approach does not seem a viable option for the simple reason that the alternatives are probably even less appropriate and risk sensitive.

Besides, with the implementation of Basel III, capital will not be solely determined on the basis of external or internal ratings; the imposition of through-the-cycle rating model approaches, dynamic provisioning and capital buffers in conjunction with concentration limits will in future prevent banks from unduly investing in sovereign debt; banks are more likely than in the past to reject the aforementioned 'moral obligation' to invest in government debt, even in relation to their own governments.

Furthermore, the creation of a European credit rating agency should be considered very carefully. Even if established as a truly independent agency that creates more competition for objective ratings, the perception will always be that such an agency is politically driven (i.e. more subject to pressure not to downgrade sovereigns).

Given the fact that sovereign risk events not only materialize in the form of changes in creditworthiness of the sovereign in question but also in changes in market risk factors (i.e. increased volatility, changes in forex or interest rates), it would furthermore be imprudent to isolate, and focus on, the CRD treatment for credit risk. Double counting or unintended consequences could be the result.

This paper therefore propagates that the solution is not to be found in one unique metric or ratio quantifying sovereign risk and commensurate capital but that measures already proposed and partly implemented by public sector entities (see Section 1.2) and some additional changes as recommended below taken together would substantially reduce the chances that in future sovereign crises immediately and unavoidably lead to bank crises.

\textsuperscript{11} Advance Notice, see references.
**Some concrete recommendations complementing the new financial sector regulations**

Based on recent events, one of the priorities for both public and private sector entities should be an enhanced focus on government data integrity, auditability and transparency comparable with initiatives in this area for securitisation bonds.

To the extent not already done, it could be suggested that credit rating agencies and banks give ample attention in their rating processes to

- differentiate more clearly between ‘real’ domestic currency and euro area-type domestic currency whereby governments are deprived of the ability to devalue their currency or print money\(^\text{12}\).
- investigate whether a differentiated weighting approach between developed and developing economies should be introduced in rating models, especially given that the manoeuvring space for developed economies may prove more limited in view of larger scale knock-on effects.

For reasons specified above, consider inclusion in default history of bail outs or transform probabilities of default to probabilities of *intervention or aid*\(^\text{13}\) bringing risk weighting more in line with actual risk taking, and discount for bail out programme tenors and refinancing possibilities post bail out.

More in general, attention should be given to bond tenors in combination with actual maturity dates (i.e. accumulation of refinancing needs, simultaneous refinancing needs of other sovereigns, point in the economic cycle, ... ).

Furthermore, more harmonization between the different credit risk approaches of the CRD is desirable as this would avoid arbitrage between the different approaches. This means in concrete that due consideration should be given to 0% risk weighting possibilities. Where there is no evidence pointing to the contrary and consensus is reached on the true risk free nature of some types of sovereign exposures, this should be allowed under all approaches.

In order to avoid conflicting incentives for banks (liquidity buffers *versus* putting a cap on sovereign exposures), it is not recommendable to cap banks’ sovereign exposures. Instead, supervisors should not only insist with their banks upon the use of all relevant (market, external rating agencies, IMF, etc.) data available in their model construction and internal validation processes, but also use the CEBS stress testing and concentration risk guidelines to verify that banks do not display undue concentration or take excessive risks and actively challenge purely speculative sovereign debt holdings.

To ensure that such contradictory guidance has no destabilising effect on the markets, a logical step would even be to automatically exempt legal reserve requirements and liquidity buffers from risk weighting and, in one way or another, give credit to diversified sovereign portfolios vis-à-vis single sovereign concentrations.

Establishing hard sovereign risk limits for banks (and subsequently for funds and insurance companies) would endanger the marketability and liquidity of sovereign debt issues and exacerbate bank problems in sovereign debt crises when the choice of high quality sovereign counterparties presumably will be more limited.

\(^\text{12}\) This position seems confirmed by new ECB guidelines for sovereign haircuts that distinguish between pre- and post-Euro sovereign debt issues.

\(^\text{13}\) Using for example the formula: \(Pr(\text{default} \mid \text{aid}) = \frac{Pr(\text{default} \cap \text{aid})}{Pr(\text{aid})}\)
Conclusion

With the emergence of new regulations as described in this paper banks and credit ratings agencies are likely to fare better in the future than during this crisis when assessing and managing sovereign risks.

Reverting to a regulatory system in which capital requirements would be based on (a combination of) simple debt or other ratios would represent a step backwards compared to the richness of data and drivers used to establish external ratings (standardised banks) and internal ratings (IRB banks). It is furthermore doubtful whether a combination of one or two ratios would 'do the trick'. Rather, supervisors should make optimal use of both new insights obtained throughout the crisis and the regulatory reforms to demand that banks' risk and capital management take appropriate notice of all direct and indirect risks inherent in sovereign exposures, that credit rating agencies sign up to codes of conduct and acknowledge and subsequently repair small deficiencies in their rating methodologies.

Evidently, limiting or disincentivising sovereign exposures in banks, or, for that matter, insurance companies, should be done with caution: banks have a fundamental requirement for sovereign exposures and holding sovereign debt is necessary for prudent risk management.

In future, with the entrance of Basel III banks will need to carefully balance the need for liquidity buffers mainly consisting of highly rated treasury bonds and the imposition of reserve requirements on the one hand with potentially higher capital requirements, a.o. due to migration risk and compliance with the principles of concentration risk as stipulated by CEBS on the other hand.

Furthermore, any change in bank regulation concerning a bank's sovereign exposures, even when a priori deemed immaterial, can only be made taking full account of the interconnectivity between the public and private sector: the ability of a sovereign to successfully access international capital markets is strongly linked to the arranging banks bringing the debt issues to the markets and to the existence of large investor bases; the latter condition is unlikely to be fulfilled if banks and insurance companies are prevented from investing. The ability (and terms) of a corporate and bank borrower to access the international capital markets depend in turn to a large extent on the health of its home-country sovereign. Free access for both issuer groups to a widely dispersed investor base is a pre-requisite for stable markets.
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Abstract

In this paper, Part 1 describes a few data on the development of national debt and risk spreads, as well as the role of Monetary Financial Institutions (MFIs) in financing public debt. The role of risk models and risk weights is discussed in connection with determining the capital required under supervisory regulations. Part 2 describes the consequences of changing risk weights on the financing of Member States national debt, as well as on banks. Part 3 finally draws conclusions from these analyses.
Sovereign Debt and CRD Risk Weighting

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Executive Summary

Government debt is not the only factor of sovereign default risk and risk weighting will have only indirect effects on government debt at most

Level and dynamics of the national debt: these are driven by macroeconomic developments and policy objectives. The "debt crisis" in Europe is a result of the financial crisis and not the result of a loose fiscal policy in previous years (apart from some exceptions). The sovereign default risk is determined by a number of factors. Sovereign debt is a factor but not the only one. Sovereign default risk is high when high government debt coincides with other factors, such as a current account deficit, negative economic growth or high inflation. The sole changing of the Capital Requirements Directive's (CRD) regulatory risk weights will have some, mostly indirect consequences for the government, banks and the economy. It will however only indirectly influence the level of public debt. Because the Monetary Financial Institutions (MFIs) fund only a portion of the national debt (for example: euro area banks share of euro area government debt stands at 35%); a likely consequence could be the substitution of funding by not-CRD regulated market participants.

Getting Methodology and Models right - otherwise we do not know what we are talking about

Improving the quality of the rating models is a priority: Risk weights are the final step in a regulatory risk assessment process. No matter how regulatory risk weights or risk functions are formulated, the crux still remains the quality of the risk models themselves. Methodology, transparency and quality are crucial. A key rating for sovereign risks (through IMF, BIS, or a future European Banking Authority 'EBA') should be considered, as well as the implementation of a separate risk function for sovereign risk in the Internal Ratings-Based (IRB) approach.

Changing Risk Weights

In discussing the effects of risk weights changes the central question is: Should the existing rule of a zero risk weight for Member States' (MS) sovereigns independent from the MS rating be changed? In this case the consequences for the country in question, as well as the MFIs and their sovereign debt exposure volume will be substantial. Lastly also because the zero weight rule is interlinked with many other CRD rules. A change would result in a multitude of direct and indirect effects. They would relate to:

- the (also affected) volume of state-guaranteed claims on other economic entities (including housing construction) and/or the claims securitised by government bonds on economic entities;
- the additional own funds that banks will have to maintain, including buffers that will be necessary for changes in ratings;
- the volume of financing, due to the large exposure provisions linked to zero weighting (as this is an "either/or provision");
- the liquidity requirements which are also linked to zero-weighting, or provisions on cover funds for mortgage bonds or trustee securities;
- the level and structure of interest rates;
- the shifting of costs for additionally required own funds.

If the zero-weight provision for MS sovereigns (and central banks) is changed and if, on account of the rating and/or the deterioration in rating, the claims on a sovereign (and the lenders benefiting from this provision) can no longer be weighted at zero, this will have repercussions not only on the interest rate level for the entire economy but also on the macro-economic financing volume.
This would not only have an impact on the funding potential of sovereigns (which can resort to non-MFIs for their funds more easily than other market players) but primarily on the financing options and thus the growth potential of economies. Such a change in provisions would influence, in particular, the national financing potential of a country and less the cross-border financing potential. It would have a pro-cyclical effect and further aggravate every crisis and thus have a risk-enhancing and not a risk-diminishing effect. However, if the intention is to limit the concentration risk of MFIs, which results from government indebtedness, one must consider whether it is possible to obtain this objective by changing the large exposure provision by introducing a certain upper limit (depending on a rating?). This could reduce the existing cluster risk vis-à-vis sovereigns, without directly affecting other economic entities, or requiring banks again to increase their own funds. This, in turn, would have an impact on the macro-economic credit volume. The same applies to provisions on liquidity which could include haircuts, depending on ratings.

**Political risk: An amendment in the CRD provision could also be seen to be a political signal**

Ratings do not only depend on government debt but quite essentially on the growth perspectives of an economy or a region. The political objective of the EU is to achieve real and nominal convergence of MS. Political steps and measures of economic policy are required to reach this convergence. In this connection, eliminating zero weights for claims against MS under supervisory regulations could be interpreted as a lack of belief in convergence. Finally, one should not omit to mention that, in the present environment, a change of provisions pertaining to zero-weighting would constitute a major dependence on rating agencies.

**1. Initial Position**

**1.1 Level and dynamics of sovereign debt: Does the EU (euro area) suffer from a sovereign risk crisis?**

Even if it is now stated repeatedly that the profligacy of national governments is the source of the European debt crisis, data show us that prior to the emergence of the financial crisis, the EU government debt/GDP ratio had been declining from 72% (1999) to 67% (2007) (see graphs 1 - 6), while the sovereign debt ratio in the USA, for example, had been on the increase. However, the average rates hide the major differences between the EU MS. Some countries have very high debt/GDP ratios; others have moderate ones. Furthermore, the public debt of some countries increased very sharply during the crisis, while its development was moderate in other countries.

Are sovereign yields (and especially yield spreads) risk indicators?

In recent years EU sovereign yields did not only increase significantly, but also showed an unprecedented degree of volatility. Nevertheless, the development of EU and especially of euro area sovereign yield spreads as well as credit default swaps (CDS) cannot simply be explained by the level or increase of sovereign debt (see graphs 7 - 13).

As the crisis unfolded, the global market price for risk went up. The consequence was a higher degree of differentiation within the sovereign spectre as such. In addition, as the public sector stepped in to support troubled financial institutions, domestic fundamentals started deteriorating and probabilities of distress went up. These large fluctuations in euro sovereign spreads reflect changes in global risk aversion, the disclosure of country-specific risks, via worse fundamentals, and contagion by other countries.14

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14 C. Caceres et al.: “Sovereign Spreads: Global Risk Aversion, Contagion or Fundamentals?” IMF working paper, 10/120.
In view of the present discussion concerning the sovereign debt crisis in Europe it may be surprising, yet it is important for understanding risk prevention, namely that the level of sovereign debt is far from being the sole determinant of sovereign spreads or even more of default (see graph 13 below). Claessen and Embrechts\textsuperscript{15}, for example, draw the conclusion that – both in the risk models of rating agencies and the banks – the model variables “fiscal balance” and “external balance” are not statistically significant factors for determining sovereign and/or transfer risk. Manasse and Roubini\textsuperscript{16}, who use a Binary Recursive Methodology (BRM), conclude that while “low total and low short-term external public debt will constitute a low sovereign default probability”, at the same time “a low external debt is by no means sufficient for avoiding a crisis”. On the other hand, a high external debt/GDP ratio, coupled with other indicators (such as high inflation, political instability, low GDP real growth rates, high current account deficits), constitutes a high probability for a sovereign debt crisis.

**Graph 13: No correlation between financial market developments and debt trend**

These results confirm the view of those who maintain that the “sovereign debt crisis” in Europe, or of the euro area, respectively, is to a large part due to the absence of a growth perspective and a lack of political credibility of the euro zone.\textsuperscript{17}

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\textsuperscript{16} P. Manasse, N. Roubini: “Rules of Thumb for Sovereign Debt Crisis”; IMF working paper, 05/42.

\textsuperscript{17} P. De Grauwe: “Fighting the wrong Enemy”, VOX, May 2010.
1.2 The role of MFIs in funding governments

To what extent are MFIs public-sector creditors? Consolidated general public debt in the EU 27 accounted for EUR 8.690 billion, or 73.4% of GDP, in 2009. For the euro area MS, the comparable figures are EUR 7.064 billion, or 78.8% of GDP.\(^{18}\) The share of MFIs, headquartered in the euro area, in financing euro area MS public debt was 35% of total euro area general government debt (EUR 1.468 billion in euro-denominated government securities issued by euro area MS, and EUR 1.002 billion in loan financing); more than 2/3 of this amount are loaned by MFIs to their domestic governments (see tables 2.1, 2.4, 2.6 and 6.2 of the ECB Monthly Bulletin).

An analysis of the foreign debt of the four euro area countries Spain, Portugal, Greece and Ireland, which are currently exposed to stress, does not to any major extent change the picture concerning the public debt funding structure. EUR 1.256 billion, or 62%, of the overall international bank claims against these four countries are financed by euro area banks; only EUR 177 billion, or 16%, of these claims are exposures to the general governments of the four MS. Hence, one could argue that the present problems can be ascribed more to private sector external indebtedness than public debt. This might be the case for countries like Spain, where the level of public debt as such is moderate.

One needs to mention that the exposure to third country sovereigns (MS outside the euro area) is of minor importance in quantitative terms, whereas the cross-border exposures of euro area MFIs to sovereigns within the euro area differ widely. The MFIs of Italy, Portugal or Spain almost exclusively finance their own governments, whereas the MFIs of Germany, France and the Netherlands have considerable financing volumes with sovereigns of other euro area countries. However, one should not be misled by the fact that euro area MFIs have a 35% share in the government debt of euro area MS. After all, providing states with funding constitutes a considerable concentration risk. In MS such as Germany, Italy, France and the Netherlands, exposures to sovereigns reach a volume that by far exceeds 100% of equity.

One should note in connection with the following analyses that, although the share of MFIs in financing public debt is remarkable, they are by far not the only public debt holders. Investment funds and pension funds are at least as important investors in sovereign debt. At the same time one should also note that government financing constitutes a considerable concentration risk for the financial system of MS, as well as for individual banks.

1.3 Risk classification, risk calculation and regulatory rules

There can be no doubt that the overall intention of financial sector regulation is to secure the soundness of the financial system. To achieve this, risk weights based on rating results, which are required to calculate the necessary capital requirement for MFIs exposures, are a main instrument to achieve this goal; yet, it is certainly not the only one.

Risk classification: Country risk, transfer risk and sovereign risk

It is decisive for any risk assessment to determine which risk is to be defined. Of course, country risk, transfer risk and sovereign risk (credit risk) are strongly inter-connected; yet, they are not identical.\(^{19}\) In a graphic presentation these three categories can best be shown by largely overlapping circles (see graph 14 below).

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\(^{18}\) On account of available disaggregated data, we refer in the following to the values of the euro zone, which covers more than 80% of EU debt.

\(^{19}\) Claessen and Embrechts, l.c., p. 4.: “.., sovereign risk is the risk that the government will fail to comply with its obligations. In practice sovereign risk may be highly correlated with country risk, but it is still conceptually a different form of risk. A transfer risk event involves thus an action by the government to impose restrictions to the transfer of funds from the debtors in the country to foreign creditors. Note that apart from a transfer risk event there are numerous other crises, which can be labeled country risk (e.g. a currency crisis or a large-scale banking crisis). These events will most often lead to losses stemming from what we call collective debtor risk, but these
Ratings do not only influence interest levels and the corresponding spreads; they are also the basis for the risk weight amounts in the CRD. In this connection it is quite significant to show explicitly which risks are addressed by a rating. There is not always compliance with this circumstance.

Which factors determine risk assessments?

Both the country-rating models of rating agencies and internal bank models use quantitative as well as qualitative indicators in order to determine risks. As a rule, the models are statistical models which help to estimate the default probability of a claim. However, there are also more novel risk assessment methods such as, for example, the Binary Recursive Methodology or the Contingent Credit Risk Models.20

As a rule, the quantitative indicators that are applied in country risk models use macro-economic indicators such as GDP growth, per capita GDP, the current account balance, the fiscal balance, external debt, government debt, inflation, foreign exchange reserves, interest rates, external financing requirements, as well as coefficients calculated from these indicators.

In addition, there are qualitative indicators such as the stability of a political system, social stability (strikes), the legal system, and alike.

These are the weak points of these models:

- So far the back-testing of these country risk models has primarily been based on the defaults of developing countries or threshold countries (in the history of country risk models there are only very few defaults of OECD countries).
- The historical series contain fundamental structural changes.

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*events do not necessarily lead to a transfer risk event. The Basel II proposals primarily address credit risk, with collective debtor risk assumed to be an integral part of credit risk (and in the correlation of defaults). In all explicit references, country risk in Basel II is restricted to transfer risk.*

20 See P. Manasse, N. Roubini, l.c.; C. Caceres et al., l.c.
All models apply gross data which constitutes a problem, especially in connection with the foreign debt of liberal capital markets.\textsuperscript{21}

Which are the decisive influencing factors? Fiscal balance, external balance, foreign debt and government debt are certainly important influencing factors in any risk assessment relating to country, sovereign and transfer risk. However, studies have also shown that, when taken individually, they need not necessarily lead to default. However, there is a high default probability if they are linked to other factors such as negative growth perspectives, high inflation and over-valued foreign-exchange rates.

In recent times models have therefore been developed which are based on a net debt approach.\textsuperscript{22} However, the decisive point is that most models have been developed and tested for developing countries so that they are of little explanatory value in relation to industrialized countries. Moreover, in an environment of liberalized capital markets gross data alone are no longer of any significance. These quantitative risk indicators are and must be accompanied by qualitative factors which, as a rule, carry a weight of about 40% for the overall risk.

**CRD and sovereign risk weights**

**The rules**

In the standard approach of the CRD, the following applies to the exposure class “sovereigns and central banks”:

- The supervisory authorities assign the rating results of recognized rating agencies to six rating categories (credit quality steps).\textsuperscript{23} Each of these steps has a specific risk weight (0% to 150%), which is used to calculate risk-weighted claims (RWAs = risk-weighted assets).
- IRB approach: MFIs use internal models to assess the probability of default (PD) and the time residual maturity of a claim. These estimates then constitute the input for the risk function regulated by the CRD (Annex VII point 3 CRD), which in turn is used to calculate the RWAs. This risk function is the same for exposures to governments, institutes and corporates.
- However, MS may allow that institutes, which chose the IRB approach, apply the standard approach permanently to the risk class “sovereigns and central banks” (permanent partial use – Article 89 CRD). The banks using the IRB approach avail themselves of this possibility to the greatest extent.\textsuperscript{24}
- Under certain conditions the risk weights assigned for sovereigns and central banks may also be applied to other exposure classes (to regional governments, for example) and to assets covered by government bonds and guarantees.
- “Exemption”: “Exposures to Member States’ central governments and central banks denominated and funded in the domestic currency of that central government and central bank shall be assigned a risk weight of 0%.” (Annex VI point 4 CRD). This may also apply to regional governments (it is up to MS authorities), international institutions, etc.

\textsuperscript{21} A country may be highly integrated into international markets, and a high level of foreign debt, in per cent of GDP, which might go hand in hand with a high creditor position vis-à-vis other countries.

\textsuperscript{22} For example contingent credit risk models.

\textsuperscript{23} In this connection, also see Basel II, point 53.

\textsuperscript{24} When resorting to permanent partial use, the capital requirements, which are the result of internal models, need not correlate with supervisory requirements. This leads to a gap between the supervisory capital requirements and the in-house risk models of MFIs, which calculate the necessary economic capital to cover unexpected losses.
• Provision on reciprocity: “When the competent authorities of a third country which apply supervisory and regulatory arrangements, at least equivalent to those applied in the Community, assign a risk weight which is lower than that indicated in point 1 to 2 to exposures to their central government and central bank denominated and funded in the domestic currency, Member States may allow their credit institutions to risk weight such exposures in the same manner.” (Annex VI CRD).

• However, the “exemption” has far-reaching consequences: After all, according to CRD logic an exposure is weighted on the basis of the risk weight of the ultimate debtor. In other words, if an exposure (e.g. a loan to a company) has been securitized by a state guarantee, or has an underlying government bond, then the risk weight of the guarantor or that of the security must be applied to this exposure.

Other rules influencing exposures to sovereigns

• Large exposure rules (Article 113 CRD): All exposures which are risk-weighted at 0% according to the rules indicated above (1.3.3.3.1.) are also exempted from the large exposure rules. As a result, individual banks or financial systems may incur a considerable risk concentration in connection with exposures to sovereigns.

• Liquidity requirements: So far liquidity standards were governed by the competent national supervisory authorities (competent authorities). The consultative document for an “International Framework for Liquidity Risk Measurement”, drafted by the Basel Committee in December 2009, defines liquid assets as (see point 34 of the document) “… marketable securities, representing claims on or claims guaranteed by sovereigns […] as long as the following criteria are met: assigned a 0 risk weight under the Basel II standardized approach, deep repro markets exist for these securities, and they are not issued by banks or a financial entity.”

• Cover Fund Eligibility: Furthermore, there are provisions outside the CRD regulations such as, for example, the cover fund eligibility for “Pfandbriefemissionen” (mortgage bonds).

2. Should CRD II be amended to give more individual risk weights to sovereign debts?

2.1 Technical changes in identifying and assessing risk

The setting screws for determining risk-weighted assets, which are the basis for determining own funds, are risk identification proper and then the risk weights, or the risk function according to the IRB approach.

• Risk identification: As was described in Section 1., the currently applied rating models and/or statistical methods have considerable weak points, due to various factors. In many cases, they will rather describe a transfer risk than a sovereign risk. The most recent past has also shown that contagion risks are playing an increasing role. As the results of rating models ultimately also influence interest rates and spreads in connection with government debt – and therefore also the interest rates for other economic players (as a rule, government bonds constitute the floor for other interest rates) – the quality, but also the transparency of risk-identification models is of decisive importance. If one were to raise the risk weights of the currently existing risk classes, or introduce additional credit quality steps, which would provide more differentiation, then the standard approach would have to be adapted accordingly on account of its taxonomy. The number of risk classes, as well as the level of risk weights for the other exposure classes would have to be adjusted.

25 http://www.bis.org/publ/bcbs165.pdf?nolrames=1
• The risk weights of the standard approach correspond to the risk function of the IRB approach. It is the same for the risk classes “sovereign”, “institutions” and “corporates”. One must therefore look into the question whether – for statistical and methodological considerations – separate risk functions need to be developed for these different exposure classes. (There is no reason based on methodology that there is a separate function only for retail exposures.)

In the long term, a major improvement will only be obtained if, parallel to a possible change in risk weights, there are also major improvements in risk assessment. This applies both to the methodology and inputs to risk models, as well as the transparency of their design. This is a decisive point which does not only have economic but also political implications.

2.2 The central issue: Zero weighting of exposures to sovereigns in national currencies - yes or no?

However, the central issue in the light of the “European debt crisis” and the discussion about risk-weighting government debt is whether – irrespective of the rating of a MS (perhaps also of a third country) – zero weights assigned to claims in national currency should be maintained for the exposure classes “sovereign” and “central banks”.

In line with the intentions and the design of the regulations in Basel II, zero-weighting is justified, as this assumes that the debt of sovereigns in their own currencies does not constitute a sovereign (credit) risk and as – by definition – a transfer risk does not exist. This assumption is based on the fact that a government can generate revenues at any time on account of its power to levy taxes, on the one hand, and that it can influence the money supply multiplier by way of inflation, on the other hand.

This assumption requires a more differentiated evaluation than 20 years ago, given the liberalization of capital markets. In the light of international capital interconnections, the fact whether “a sovereign is in a position to print its own money”, is no longer sufficient reason for a state not to default in its own currency. Rather, what matters is the “willingness to pay”. After all, a government could also be of the opinion that defaulting is the better macro-economic alternative.

2.3 Impact of a change in sovereign debt risk weights

Macro-economic significance of ratings

Ratings reflect risk assessment, and they are therefore an essential factor for interest-rate levels, or the spread structure of government debts, or also for CDS.28

In a situation of liberalized money and capital markets, ratings also influence the debt (claims) denominated in national currency. The benchmark function of interest on government debt for claims against other market players on national markets results in a shift of the entire national interest-rate system. However, ratings do not only have an impact on interest levels and the corresponding spreads, but also on the maturity of funding (short versus long). A deterioration in rating therefore has a negative influence on funding volumes and costs, via interest-rate and structural effects, and consequently on the overall economic development.

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26 The author does not give an evaluation as to whether there is a European debt crisis or not.
27 See: Claessen and Embrechts; l.c.
28 The author is aware of the fact that no unambiguous answer can be given to the question whether ratings have a lead or a lag function vis-à-vis spreads and CDS. However, for the conclusions to be drawn here it is important to note that ratings “corroborate” spreads, i.e. short-term fluctuations in interest rates become long-term spreads on account of ratings.
Change in risk weights

Will a change of the zero-weight provision have a political signaling effect?
The recent crisis has shown that spreads and/or changes in rating were largely driven by contagion risks. The markets could therefore interpret a change of the zero-weight provision for MS as a signal that MS are now attributing a different priority to more nominal and real convergence.

Economic effects

- **Will a change in risk weights require additional own funds?**
The magnitude of a requirement for additional own funds depends on which exposures (all exposures or only cross-border exposures) and which country ratings would be affected. When assuming that 30% of the exposures to government funded euro area MFIs would be affected, and if one had to apply an underlying risk weight of 10 (20)%, then MFIs would require about EUR 6 (12) billion of additional own funds. This is a relatively small amount, in comparison to the addition capital requirements resulting from CRD III and/or CRD IV. However, this is not the end of the story, as zero-weighting also applies to all “indirectly” benefiting exposures (see above), and as these would also change the capital requirements. Nor should one forget that money deposited by MFIs with central banks would also be affected.

- **Additional capital buffers:**
  As shown above, Government debts are also a concentration risk for MFIs. If a MFI must take account of the fact that the supervisory capital requirements will change depending on ratings, then they will have to maintain certain capital buffers. Take the example of Italy: The exposure of the Italian MFIs vis-à-vis the Italian government amounts to EUR 447 billion, which amounts to more than 150% of their respective equity. If there were only a risk weight of 10% (at a solvency ratio of 8% own funds for the risk-weighted exposures) this would mean EUR 3.6 billion of additional own funds for the Italian MFIs in connection with sovereign debt. This does not include additional requirements for state-guaranteed claims and exposures with underlying government bonds.

- **Impact on costs due to higher own funds; Effects on interest-rate levels if risk weights were changed:**
  MFIs will endeavor to shift the cost of additional capital requirements to the interest rates which they charge. It is a matter of competition to what extent this would be successful. Further indirect effects could result from shifts in demand which, in consequence, could lead to larger spreads. There would be increased demand for funding with “save heavens”. If this entails a change in government bond yields, one cannot rule out a general effect on interest levels, on account of the fact that these serve as a benchmark for the interest level of a country. However, the secondary effects are more dramatic, as they relate to all those claims that indirectly benefit from the zero-weighting provision. Here, one can certainly assume that MFIs will shift their additional costs for own funds.

- **Effects of risk weight changes on other prudential rules:**
  Large exposures rules and prudential liquidity rules are sensitive to risk weights. According to the large exposure rules (Article 113 CRD), only zero-weighted exposures to governments are exempted from the specific requirements, which stipulate that a single exposure to a client shall not exceed more than 25% of own funds. According to the figures presented above, it is obvious that most of the MFIs would be unable to comply with this rule in respect of their exposures to their national governments, in the event that risk weights would no longer be zero. The same applies to all other claims that have government securitisation (or an equivalent guaranty) or underlying government bonds.

3. Conclusions and recommendations

3.1 The statistical models

The statistical models show that the level or the dynamics of government debt alone does not suffice to explain government default risk. A default risk depends on a wide range of factors. Most recent studies have also shown that, on account of liberalized capital transactions and the concomitant increasingly international interconnections, there is a growing risk of contagion between and among countries. With regard to the influence exerted by the level and the dynamics of government debt it must be stated that, as a matter of principle, these are, of course, driven primarily by macro-economic developments and political objectives. However, supervisory regulations may result in indirect effects. It should be borne in mind, though, that MIFIs are major fund-providers for government debts, but by far not the only ones (the share of euro area MIFIs, for example in euro area state funding amounts to 35%). Moreover, the major part of the funding provided by MIFIs is concentrated on funding the country in which they are incorporated.

3.2 What could be the determining factors for risk weights?

Risk weights are the final step in a risk assessment process which ultimately determines the own funds required for a claim under supervisory regulations. The input into risk models are quantitative, macro-economic indicators, on the one hand, and qualitative assessments such as political factors, on the other hand.

Different analyses conducted by the IMF and the BIS have shown that the most commonly used risk models do not always distinguish between the individual risk types (e.g. country risk, transfer risk, sovereign risk, etc.), and that the value of the statistical interpretations of risk models is limited which, last but not least, is due to the fundamental structural changes in the time series. Furthermore, more recent approaches leave behind the gross indebtedness approach and adopt a net concept.

A change in risk weights due to supervisory regulations may be achieved by applying a number of setting screws. In essence, these are risk identification as such, i.e. the quality of the risk models, the number of rating categories (credit risk steps), and the risk weights under the standard approach ad/or the risk functions of the IRB approach. All three options should be considered when planning a change. However, the quality and transparency of the risk models are the decisive factors.

MFIs usually apply the standard approach to weighting the exposure to sovereigns (provision on permanent partial use). The external ratings therefore have considerable significance.

One could also consider whether developing rating models for sovereign risks, for the purpose of supervisory regulations, should not be developed by the future EBA. The corresponding risk weights, and/or a special risk function according to the IRB approach, would then be uniformly prescribed for all MIFIs in the EU. This would ensure a uniform quality of the ratings and reduce the dependence on rating agencies when assessments are made under supervisory regulations.
3.3 What would be the effects (of a change of rules) on Member States and MFIs?

In the event that the current arrangements, which currently require zero-weighting of exposures in national currency to sovereigns and central banks of MS (and for all other debtors, benefitting indirectly from this exemption), independent of the respective rating, the effects would be manifold and partly dramatic. They would relate to:

- the (also affected) volume of state-guaranteed claims on other economic entities (including housing construction) and/or the claims securitized by government bonds on economic entities;
- the additional own funds that MFIs will have to maintain, including buffers that will be necessary for changes in ratings;
- the volume of financing, due to the large exposure provisions linked to zero weighting (as this is an “either/or provision”);
- the liquidity requirements which are also linked to zero-weighting, or provisions on cover funds for mortgage bonds or trustee securities;
- the level and structure of interest rates;
- the shifting of costs for additionally required own funds.

If the zero weight provision for MS sovereigns (and central banks) is changed and if, on account of the rating and/or the deterioration in rating, the claims on a sovereign (and the lenders benefitting from this provision) can no longer be weighted at zero, this will have repercussions not only on the interest rate level for the entire economy but also on the macro-economic financing volume. This would not only have an impact on the funding potential of sovereigns (which can resort to non-MFIs for their funds more easily than other market players) but primarily on the financing options and thus the growth potential of economies. Such a change in provisions would influence, in particular, the national financing potential of a country and less the cross-border financing potential. It would have a pro-cyclical effect and further aggravate every crisis and thus have a risk-enhancing and not a risk-diminishing effect. However, if the intention is to limit the concentration risk of MFIs, which results from government indebtedness, one must consider whether it is possible to obtain this objective by changing the large exposure provision by introducing a certain upper limit, depending on the sovereign rating. This could reduce the existing concentration risk vis-à-vis sovereigns, without directly affecting other economic entities, or requiring banks again to increase their own funds. This, in turn, would have an impact on the macro-economic credit volume. The same applies to provisions on liquidity which could include haircuts, depending on ratings.

3.4 Political risk: An amendment in the CRD provision could also be seen to be a political signal

Ratings do not only depend on government debt but quite essentially on the growth perspectives of an economy or a region. The political objective of the EU is to achieve real and nominal convergence of MS. Political steps and measures of economic policy are required to reach this convergence. In this connection, eliminating zero weights for claims against MS under supervisory regulations could be interpreted as a lack of belief in convergence. Finally, one should not omit to mention that, in the present environment, a change of provisions pertaining to zero weighting would constitute a major dependence on rating agencies.

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30 It should be borne in mind that the currently applicable rule do not distinguish between cross-border and national funding arrangements.
Charts

Total public debt
(end of period, in % of GDP)

Graph 1. Olive belt & Ireland

Graph 2. EMU core

Graph 3. Euro-Outsiders

Budget Balance
(in % of GDP)
Graph 4. Olive belt & Ireland

Graph 5. EMU core

Graph 6. Euro-Outsiders

Yield spreads over German bunds
(10y, in percentage points)
Sovereign Debt and CRD Risk Weighting

Graph 7. Olive belt & Ireland

Graph 8. EMU core

Graph 9. Euro-Outsiders

Graph 10. Olive belt & Ireland

Source: Thomson Datastream
Credit default swap (10yr)

Graph 11.
EMU core

Graph 12.
Euro-Outsiders

Source: Thomson Datastream
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Role
Policy departments are research units that provide specialised advice to committees, inter-parliamentary delegations and other parliamentary bodies.

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Documents