

Capital Requirement for Sovereign Assets: Some Issues and Concerns*

Post global financial crisis and particularly, after the euro zone crisis of 2011, the near risk free status of sovereign bonds has come into question. The BCBS decided to include the review of capital requirement for sovereign exposures in its work plan for 2015 and 2016, which is gradually seeping into discussions at other global fora like CGFS, FSB and even the G20. While the jury is still out on preferential treatment for sovereign exposure of banks, any imposition of risk weights on sovereign assets implies a complete paradigm shift and is bound to have far reaching repercussions especially for bank dominated financial systems.

I. Background

Post global financial crisis, and in view of the on-going strains on public debt sustainability in the euro-area, *the conventional wisdom that government bonds are 'risk free' is being questioned and debated by academia and policymakers.* As such, sovereign distress could have an impact on the banking system and on financial stability. The 'zero risk weights' assigned to sovereign bonds could make banks vulnerable to systemic risks in case of any country getting into serious fiscal stress. While prudential regulation cannot prevent sovereign crises, a robust regulatory framework can act as an important mitigant to the impact of sovereign distress on the banking system. Policy makers are now deliberating ways to address the linkages between sovereign debt and banks' balance sheet.

Against this backdrop, the Bank for International Settlements (BIS) is currently examining the credit risk treatment of sovereign exposures in capital regulation, under both the standardised approach (SA) and the internal ratings based (IRB) approach. The Economic and Financial Committee (EFC) High Level Working Group at the EU level is also examining these issues related to risks posed by sovereign exposures.

Against this backdrop, the next section sets out the standardised treatment of sovereign risk in the Basel Capital framework, including in India. Section III presents the literature so far supporting

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the imposition of a risk weight on sovereign assets. Indian perspective on the issue is given in Section IV, and Section V summarises the issues going forward.

II. How is sovereign risk treated under Basel Capital Framework?

Under Basel I treatment of sovereign risk, banks used to assign a zero risk weight to sovereign exposures of OECD member countries, while for exposures to non-OECD countries, the treatment was diametrically opposite that of assigning a cent per cent risk weight. Currently, most of the jurisdictions follow the Basel II framework in treatment of sovereign exposures in the banking book. Basel III has not brought about any change in this. Annex 1 summarises the existing regulatory treatment of sovereign exposures, which clearly is more favourable than other asset classes.

As per Basel II norms, jurisdictions have the flexibility to adopt either the SA, or the IRB approach, or both the methodologies. While the SA relies on external credit ratings, the IRB relies on bank's own risk assessments.

Standardised Approach

Under SA for credit risk based on external credit ratings, except the highest-quality credits (AAA to AA) which bears a nil risk, the rest of the rating categories are assigned a positive risk weight (Table 1). However, the SA approach also states, "At national discretion, a lower risk weight may be applied to banks' exposures

Table 1: Risk Weights for Sovereign Assets under the Standardised Approach

(in per cent)

Credit Ratings	Risk Weight
AAA to AA-	0
A+ to A-	20
BBB+ to BBB-	50
BB+ to B-	100
Below B-	150
Unrated	100

Source: Basel Committee on Banking Supervision, Bank for International Settlements, December 2015.

to the sovereign denominated in domestic currency and funded in that currency."¹

Internal Ratings Based Approach- Credit Risk

This is the most relevant standard for internationally active banks including global systemically important banks (GSIBs). In this approach, the risk weights for sovereign exposures are derived using a granular ratings scale, based on a model developed by the BCBS. Risk weights are primarily dependent on bank's own estimates of probability of default (PD), loss given default (LGD), exposure at default (EAD) and effective maturity (M) for a given exposure. The Foundation IRB approach allows banks to rely on their risk assessments for PDs but requires them to use a standardised LGD of 45 per cent set by supervisors with a maturity of 2.5 years. The PDs are subject to supervisory validation. The PDs and the corresponding risk weights are given in Table 2.

While the IRB approach does not automatically result in a zero risk weight for sovereigns, it nevertheless allows preferential treatment in two ways. First, unlike other corporate and bank exposures, there is no PD floor for sovereign exposures so that banks may apply a nil or zero per cent risk weight to them (if the internally estimated PD is zero). Second, banks are authorised under conditions, particularly

Table 2: Illustrative IRB Risk Weights for Sovereign Exposures

Probability of default (%)	Risk Weight (%)
0.01	7.53
0.02	11.32
0.03	14.44
0.05	19.65
0.10	29.65
0.25	49.47
0.50	69.61
1.00	92.32
5.00	149.86
10.00	193.09

Assuming LGD 45 per cent and maturity 2.5 years.
Source: BCBS.

¹ Para 54 of Basel II document.

where computation of PD is challenging, the 'IRB partial use' (*i.e.*, to use standardised approach for sovereign exposures (implying a zero risk weight) and the IRB approach for other exposures).

Thus, a lower risk weight, mostly zero, is generally applied to sovereign exposures either using the national discretion under the standardised approach or using the no-floor for PD or IRB partial use clause.²

Treatment of Sovereign Exposures under Large Exposure Framework

The Basel framework includes requirements/ceilings in relation to banks' large exposures to minimise large losses resulting from the sudden default of a single counterparty. Exposures to sovereigns and central banks as well as public sector enterprises (PSEs) treated as sovereigns in the Basel framework are exempted from large exposure limits. The appropriate treatment of concentrated sovereign exposures are being discussed by the BCBS as part of a broader review of the treatment of sovereign risk.

Treatment of Sovereign Exposures under LCR Framework

LCR requires a bank to have an adequate stock of unencumbered high-quality liquid assets (HQLA) to address an acute liquidity stress scenario lasting for 30 days. Subject to certain specified conditions, marketable securities issued by sovereign and central bank may be considered HQLA without any haircut

(although haircut is possible with supervisory discretion). Thus, banks are encouraged to have higher sovereign exposure (which is a part of the HQLA) under LCR framework. In such a scenario, it would be imperative to ensure consistency across applicable financial regulations.

Treatment of Claims on Sovereign in India

All banks in India are presently under Basel II Standardised Approach for credit risk. Securities issued as well as guaranteed by domestic sovereign are assigned zero risk weight as per the national discretion permitted under Basel II. As regards claims on foreign sovereigns, they attract risk weight as per the ratings assigned to those sovereigns by international credit rating agencies. The claims denominated in domestic currency of the foreign sovereign met out of the resources in the same currency raised in that jurisdiction of that sovereign, however, attracts a risk weight of zero per cent, as allowed under Basel framework³ (RBI, 2012).

As per RBI's guidelines, in the absence of sufficient data points, if banks find it difficult to apply IRB approach to the sovereign exposures, these may be treated as per standardised approach, subject to a ceiling of total partial use under IRB. They are, however, required to make an endeavour to apply IRB approaches to these exposures at the earliest.

Pillar 2 (supervisory review process) covers the monitoring of sovereign risk and its impact on bank's risk profile. Risks that are not fully captured by Pillar 1 should be particularly suited for treatment under Pillar 2. Sovereign risk is not flagged as such but in view of the global developments, supervisors could consider specific measures, particularly when credit risk exceeds manageable levels. The prudential measures in Pillar 2 that supervisors can apply for sovereign risks could cover a broad scope ranging

² While the United States still uses the standardised approach, the EU till recently was using a generalised zero risk weight through the IRB permanent partial use rules to be phased out between 2017-2020. The new EU framework, that came into force from January 2014 requires that, following the phasing-out, credit rating agencies' assessments need to be used. In this direction, Belgium's biggest bank, the KBC Group, ended its practice of ascribing no risk to government bond holdings in May 2014.

³ As regards sub-sovereign entities, while claims issued by state governments are assigned zero risk weight, the ones guaranteed by them are given 20 per cent risk weight.

from dialogue with the senior management to actions such as the adjustment of the valuation of exposures or to strengthen the capital base.

III. Why Capital Requirements for Sovereign Assets?

Post global financial crisis, particularly after the European sovereign debt crisis, it was clear that the sovereign exposures that are largely regarded by financial regulation as risk free assets and hence accorded zero risk weight may not be actually risk free (Nouy, 2012). On the related issue, Caruana (2011) underlines that the global financial crisis that initially exposed the fragilities of private financial institutions, overtime interacted with weak public finances to open up the fault lines in both financial systems as well as the economies in general.

Sovereign risk arises when government spends far in excess of tax revenues for a significant period, and go for large borrowings and eventually may not comply with its contractual debt obligations. This risk falls under the category of credit/default risk. And this is immaterial whether debt is denominated in local currency or foreign currency. While the latter is more prone to credit risk, the former is prone to credit risk in an indirect way. In case of former, since the debt is in local currency, sovereign can easily print the desired amount of money to repay debts and avoid a default, *i.e.*, it can monetise the debt. Monetisation of public debt implicitly amounts to a default as the consequent inflation may reduce the holdings of real money balances as in an explicit default (Goodhart, 2012). The other option through which sovereign can repay local currency denominated debt, especially held by foreign investors, is by devaluation of the currency. In this case, while sovereign credit risk is eliminated, the devaluation of currency itself could be a source of risk through risk off sentiment, capital outflows and rating downgrades. Devaluation risk (depreciation risk in a floating rate regime) as well as risk of monetising the debt have therefore been identified in market debt as key components of

sovereign risk, along with default risk (ESRB Report, 2015). Thus, while the crystallisation of sovereign risk is a low-probability, high-impact event, sovereign distress can take several forms, ranging from outright default (“fundamental default”), an unwillingness to pay (“strategic default”), a temporary inability to pay (“technical default”), redenomination (“real default”) or inflating away obligations. Sovereign distress can also comprise non-default events, such as multi-notch ratings downgrades and falling market valuations. Historically, such events have been more frequent than outright defaults.

Given the above logic, it was argued that if the objective of regulation is to provide for any loss absorption capacity, it is compromised by assigning a zero risk weight on sovereign exposures. Such preferential regulatory treatment for sovereign exposures could make investments in these risky sovereign debt particularly attractive as happened in case of euro area peripheral countries (Acharya and Steffen, 2014) and in the long run lead to the bank-sovereign nexus and the corresponding systemic risks (*e.g.*, contagion and moral hazard risks). This nexus was visible in case of Ireland where, to address banking sector stress, government provided large scale support in the form of capital injections and guarantees which ultimately led the Government to approach for EU/IMF fundings (Acharya, Drechsler and Schnabl, 2011). In case of Greece, fiscal stress of the government and its subsequent restructuring practically led to the collapse of the Greek and Cyprus banking sectors in 2013 (Zettlemeyer, Trebesch and Gulati, 2013). Since then, the so-called “doom loop” (Gros, 2013), “deadly embrace” (Farhi and Tirole, 2015) or “hazardous tango” (Merler and Pisani-Ferry, 2012) between banks and sovereigns have become the topic of intensive policy and academic discussions. It can also be seen as supporting financial repression (*i.e.*, policies that require private savings to be invested in government bonds and are likely to end up with long term misallocation of capital) (Hannoun, 2011). Assuming a zero risk weight on sovereign exposures

could possibly crowd out credit to private sector, particularly in a low growth environment (Gray *et al*, 2014). Hence, this school of thought argued that some risk weight should be assigned to sovereign debt as per the inherent risks.

Studies have also attempted to quantify the extent to which banks are undercapitalised due to zero risk weights, calling it the ‘sovereign subsidy’. The alternate methods to compute the appropriate risk weights for sovereign exposures suggest that the sovereign subsidy amounted to almost 100 per cent of banks’ tier 1 capital, on average in 2013 for Euro zone (Korte and Steffen, 2014). Among the regulatory ratios already prescribed by the BCBS, while the scope of the leverage ratio includes sovereign exposures, it may be insufficient to mitigate sovereign risk as it is not the constraining metric for most banks. Also, capital requirements for other asset categories have increased in recent years post Basel III, which has increased the relative capital requirements “gap” between sovereign exposures and other asset classes.

IV. Indian Perspective on the issue

The verdict is far from clear on the issue. There are equally strong reasons for restraining from any universal approach towards sovereign risks, as it is widely felt that it is a pure EU-specific issue and should be dealt with as such. It is generally felt that even a small risk weight could have significant impact in the financial markets in particular and the overall economy in general, while the modalities of deciding the extent of risk weight as well as the likely benefits are still uncertain. Some EMEs including India, along with some AEs such as Japan and Italy, have voiced concern on change in regulatory treatment of sovereign exposures.

Not all sovereign debt can be painted with the same brush. Default histories are important, and so are the inflation records and central bank commitments to inflation targets. The government’s commitment to fiscal prudence as well as the economy’s growth rate

and the ability to service debt are other important considerations. In the light of the above, there are practical problems in assigning risk weights to sovereign assets. Sovereign debt defaults are not the order of the day but are one-off events. Hence, any modeling is constrained by non-availability of data points and are influenced by judgment and other factors which might not be credible. Any mechanistic risk weighting framework, whether based on external credit ratings or on other possible market indicators like corporate default swap (CDS) spreads, may potentially aggravate the sovereign/bank feedback loops in a future crisis.⁴ Assessing sovereign risks based on sovereign ratings is likely to make us fall again in the trap of adverse consequence of regulatory reliance on ratings witnessed during the global financial crisis. Notwithstanding some revisions in the ratings agencies’ methodologies post crisis, their reliability and role is still being questioned.⁵ Empirical evidence has shown that rating agencies give higher ratings to AEs regardless of their fundamentals, thus supporting the existence of a bias against EMEs (Chee *et al*, 2015; Karakas *et al*, 2011). All the BIS EME countries have emphasised in one tone that improvements in their fundamentals in recent years have not been recognised by better ratings (Annex 2). Cases of ratings inertia is also stark. As regards CDS spreads, they are contaminated, and reflect market sentiments and exhibit significant co-movement across EMEs. Both ratings and spreads tend to remain unjustifiably indulgent for a long time, during which risks build up, only to shift abruptly when it is too late. Thus, both are not reliable indicators for credit risk.

Another important aspect is the nature of currency. Any risk weighting framework should also take due cognizance of the extent of sovereign borrowings in local and foreign currency, which

⁴ Many of the market based indicators such as CDS spreads are contaminated and may not be a very reliable indicator for credit risk.

⁵ This issue is being discussed at global fora.

brings an element of externality to potential default situations. Howsoever independent a central bank is, it will support the central government in meeting its local currency obligations even at the cost of some depreciation or inflation, making a default in local currency practically an improbable event. The case is very different for monetary unions where the organic link between the central bank and the central government breaks down. For EMEs, including India, sovereign default on local currency is somewhat difficult to conceive. To illustrate, in a monetary union, unsound national fiscal policies in some nations can spillover to other nations and can influence the single monetary policy (Benoit, 2014). Most studies have found evidence of bad bank sovereign nexus and the consequent regulatory capital arbitrage essentially in euro area nations, which is a monetary union. Even Korte and Steffen (2014) while computing sovereign subsidy clearly state that a bank with non-domestic sovereign subsidy may require much larger public backstop by the respective governments.

Also, bank-sovereign linkage need not always be detrimental. To the extent that a crisis also reflects factors that are not entirely justified by fundamentals, purchases by banks and other domestic financial actors may play an important role in stabilising the sovereign as well as the domestic banking sector. In India, domestic banks were able to buy sovereign debt at a time when many other players (*i.e.*, foreign banks, asset managers, *etc.*) were retreating from the market and thereby, contributed to significantly limiting the stress by stabilising yields and spreads, and arguably, to avoiding the materialisation of a sovereign liquidity crisis, as it happened in Italy and Spain. However, when the crisis is mainly driven by fundamentals, increasing exposures can be very detrimental for banks' stakeholders as the cases of Greece and Cyprus suggest.

Sovereign debt market provides the base yield curve for the financial system, and therefore even a small change in their regulatory treatment may

have repercussions for the financial markets. As we are aware, in financial theory, the returns earned on the government securities normally serve as the benchmark rates and are referred to as the risk free return, which in turn is used to price all other non-government securities in financial markets. If risk weight for Government bonds is increased, the return on the entire gamut of financial instruments that are priced out of the risk-free rate will increase. This could have a magnification effect on the cost of capital, and thereby, hurt investment and growth. At a time when economy is on the recovery path, this may not be a prudent route to take. If sovereign debt in a country were to be risk weighted, the local currency would be a currency explicitly without a 'risk free rate', unless a new common 'risk free' (anchor) asset is created. According to Nielsen (2016), 'To imagine a well-functioning market economy without a 'risk free rate' in its own currency would defy the finance theories underpinning any known market economy'.

Furthermore, it needs to be kept in mind that while there are areas of the regulatory framework with known exemptions for these exposures, there are pockets of the regulatory framework which do set positive capital requirements for such exposures (*e.g.*, the leverage ratio). Leverage ratio ensures that at all times a certain amount of capital is maintained for all the components of bank assets, including sovereign exposures. Moreover, other post-crisis reforms, such as total loss-absorbing capacity (TLAC) requirements for global systemically-important banks, bail-in rules and progress in recovery and resolution frameworks, will help loosen the bank-sovereign nexus, at least with regard to the "bank to sovereign" channel. Besides, assigning a risk weight to sovereign debt may be contradicting the already established LCR norms and hence, may not be desirable. While LCR encourages banks to hold more sovereign debt (which is a part of the high quality liquid assets), the current proposal of assigning a risk weight could act as a disincentive to hold sovereign debt.⁶

⁶ It may be noted that except leverage ratio, all other regulatory ratios will get altered because of imposition of risk weight on sovereign exposures.

In this context, it may be mentioned that as of end-March 2017 banks in India held about 47 per cent of the total outstanding domestic central government debt. Any risk weight on such exposures could lead to a major shift in banks' securities portfolio causing financial market volatility and impairing monetary policy transmission. Assigning a risk weight to G-sec for capital adequacy purpose will immediately alter the demand for G-sec (and therefore yields) and will also require higher haircuts for repos [both liquidity adjustment facility (LAF) and market repos]⁷, which in turn will alter the pricing of collaterals and levels of access to liquidity against any given stock of excess statutory liquidity ratio (SLR)⁸ maintained by banks. In an easing cycle of monetary policy, both money market rates and yields will harden, which will be a hypothetical case of regulatory policies working directly in conflict with monetary policy. Generally, capital charge for capital adequacy purpose would be treated as a cost factor by banks, whereas non-banks may not face such a regulatory constraint and therefore the bidding pattern of banks and non-banks may change in primary/secondary markets, possibly adding volatility to yields. Till such time that banks and non-banks adjust to the new capital charge for banks on their G-sec portfolios, volatility in yields will add complications for the monetary policy transmission. Constraints on banks' ability to absorb large amounts of domestic government debt can restrict fiscal space of government and amplify the dynamics of fiscal positions in a procyclical manner.

As mentioned before, an alternative regulatory requirement being pondered to restrict sovereign risk is to remove the exemption given to sovereign exposures under Large Exposure (LE) framework. However, there are other concerns associated with this. When the LE constraint becomes binding, the

marginal capital needs are expected to be much higher than the risk weights on sovereign exposures. This is because while risk weights leave some room of adjustment, no such room will be available in the case of LE limits. Banks faced with a risk weight on government debt can satisfy the maximum capital requirements by reducing the exposure to other assets, with no need to raise further capital. However, the hard LE limit would require either off loading of banks' exposure in government debt or increase in capital. It is significant to note that not only in India, but banks in many other economies, both AEs and EMEs, hold a sizeable share of government debt in their portfolio. Even in Japan and Italy, government debt constitutes around 18 per cent of banks' asset portfolio. Thus, LE limits could, in general, be more challenging for monetary policy transmission than risk weights. In the absence of adequate availability of other liquid assets such as corporate bonds, banks rely largely on sovereign bonds to meet the requirements of liquid assets. It may have the prospect of creating significant disruption in the government securities market, and banks' ability to meet the LCR. The LE limit may also have serious implications for financing of government debt by way of raising the cost of borrowing for the government.

V. Going Forward

Historically outright defaults on domestic currency denominated sovereign debts have been highly infrequent. As many sovereigns like Government of India have never defaulted on their domestic currency denominated debt, there is no justification to necessarily require a non-zero risk weight for such exposures. India along with many EMEs are supportive of the present framework that provides adequate flexibility to national regulators to prescribe an appropriate risk weight and thereby, to take care of all eventualities.

⁷ Currently, 4 per cent haircut on repo transactions under the LAF and 2 to 5 per cent for market repos depending on the liquidity of securities.

⁸ Effective June 24, 2017, banks in India are statutorily required to maintain 20% of their net demand and time liabilities (NDTL) as cash, gold and unencumbered securities.

Going forward, some of the prominent policy options being discussed (based on ESRB Report, 2015; Visco 2016; Nielson, 2016; Patrick, 2016) are

- a) First, the current baseline treatment of sovereign exposures should continue as any change in the regulatory treatment of sovereign exposures would entail severe repercussions on the bond markets, on the banking system, monetary policy transmission and on the financial system in general which may not be desirable at this stage. Besides, imposing a capital requirement on sovereign assets has practical difficulties given the cross country differences, absence of data points and no unanimity on a suitable indicator to price sovereign risks.
- b) Introducing positive yet low standardised risk weights for domestic currency denominated sovereign exposures while exempting central bank exposures
- c) Reducing excessive banks' sovereign concentrations.

- d) Enhancements to the Pillar 2 and the Pillar 3 treatment of sovereign exposures .

While the issue of sovereign risk weight is still a work in progress and it is premature to say which way it would end, but it looks like that we will soon be out of this world of risk free assets. The critical question is when and by how much. Unless some credible alternatives are devised which can be implemented across jurisdictions in a consistent manner, the present SA framework providing uniform treatment to the sovereign risk across jurisdictions should continue for the time being. In any case, the leverage ratio addresses to some extent the concerns in this regard. Moreover, the various channels of transmission, viz., size of sovereign holdings, home bias, capital resources and funding patterns also need to be built in any impact assessment which would consider impact on several areas such as government bond markets, other securities markets, the business models of banks, and above all the macro-financial stability. To conclude, given the sensitivities of the issues involved, a careful, holistic and gradual approach is desirable.

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Annex 1:
Summary of Current Regulatory Treatment of Sovereign Exposures

Credit risk: standardised approach

- Ratings-based look-up table. National discretion to apply a preferential default risk weight for sovereign exposures denominated and funded in domestic currency.
- In practice, a 0% risk weight is applied by all BCBS members (although this is not always reflected at the consolidated level for some banking groups).

Credit risk: internal ratings-based (IRB) approach

- Exemption of 0.03% PD floor for sovereign exposures (ie a 0% PD may be applied).
- In practice, most IRB sovereign exposures have positive risk weights. **Credit risk: credit risk**

mitigation framework

- National discretion to apply a zero haircut for repo-style sovereign transactions with core market participants.

Revised market risk framework

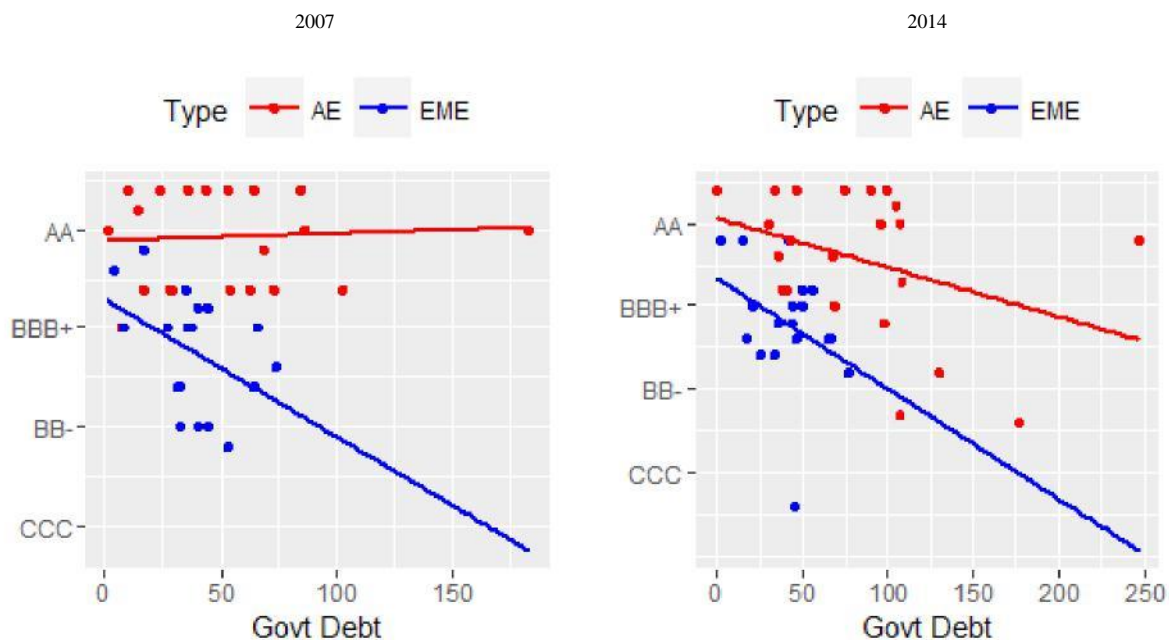
- Default risk: national discretion to apply a preferential default risk charge for sovereign exposures denominated and funded in domestic currency in the standardised approach. In practice, a 0% charge is applied by all BCBS members.
- Credit spread risk: positive credit spread risk charge in both the standardised and internal model approaches
- General interest rate risk: capitalised as part of market risk requirements.

Large exposures framework

- Exemption of sovereign exposures. **Leverage ratio framework**
- Inclusion of sovereign exposures. **Liquidity standards**
- No limits on amount of domestic sovereign debt eligible as high-quality liquid assets, with no haircuts applied.

**Annex 2:
Ratings vs Government Debt and GDP Growth**

Rating vs Govt. Debt



Rating vs GDP growth

