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BREAKING THE DOOM LOOP

THE EURO ZONE BASKET

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1. Executive summary

Euro zone banks have significant holdings of domestic sovereign debt, inducing a close sovereign-bank nexus that endangers financial stability. We present a suggestion of how to break this nexus, which does not involve pooling and/or tranching and is fully consistent with standard Basel capital requirements. At the same time, it does not require capital provision for sovereign portfolios held as collateral for liquidity operations with the lender of last resort (LOLR). Rather, it differentiates between the purpose of collateral for LOLR liquidity operations and the individual investment decision of which sovereign debt to hold. In this way, our methodology is market-driven and can foster financial integration in Europe.

2. Introduction

Sovereigns tend to assume their own perpetuity and infallibility. Both assumptions are obviously wrong (with the possible exception of the Vatican), but they have found their way into one of the key foundations of the financial system. While financial regulation requires banks to set aside capital reserves to cover the risks of their assets (as set out e.g. in Basel Committee on Banking Supervision 2010), a zero risk weight applies to the exposures towards their sovereign.[1,2]

The zero risk weight of sovereign exposures has been the subject of a number of discussions (Lenarčič, Mevis, and Siklós 2016), since it has become apparent that sovereign exposures are in fact not risk free – as discussed in detail by Sturzenegger and Zettelmeyer (2005) and Zettelmeyer, Trebesch, and Gulati (2013). As a result, policy-makers and analysts view the sovereign-bank nexus as one of the most significant challenges to overcoming the debt crisis in Europe. First, bank risks fed back into sovereign risks when systemically important banks in trouble had to be rescued by the public sector. Losses in the private sector had thus to be covered by the public sector. Second, and more importantly for the purpose of this paper, troubled states created problems for banks that had invested significantly in the sovereign debt of these states.

Much attention has been given to the question of how to break this nexus. Still, euro zone banks are highly vulnerable – even more vulnerable than before – to sovereign debt crises. In particular, many banks in the euro zone have borne losses from their sovereign exposures when these exposures were subject to significant haircuts as calculated by Zettelmeyer, Trebesch, and Gulati (2013) – leading to a banking crisis in one euro zone country (Cyprus)[3] and contributing to a 'doom loop' – the vicious cycle of banking and sovereign crises. While abolishing the zero risk weight has been a repeated request in the discussion,[4] the consequences of an abrupt change to the cost of funding sovereign debt and deficits has been a concern (e.g. Visco 2016).

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[1] This zero risk weight is due to article 114(4) of the Capital Requirements Regulation (CRR). In principle, the Basel Accord requires a limited non-zero risk weight for sovereigns, depending on their risk (as discussed by e.g. BIS, 2013), but this has currently not found its way into the CRR in articles 114(4) and 114(5) for euro zone member sovereigns.

[2] A further reason has been claimed to be reaping a ‚sovereign subsidy' totaling 750 billion EUR for a sample of 54 large European banks in 2013 (numbers calculated under certain assumptions by Korte and Steffen, 2015).

[3] For a contemporary overview, see e.g. Demetriades (2012) and in more detail Zenios (2013).

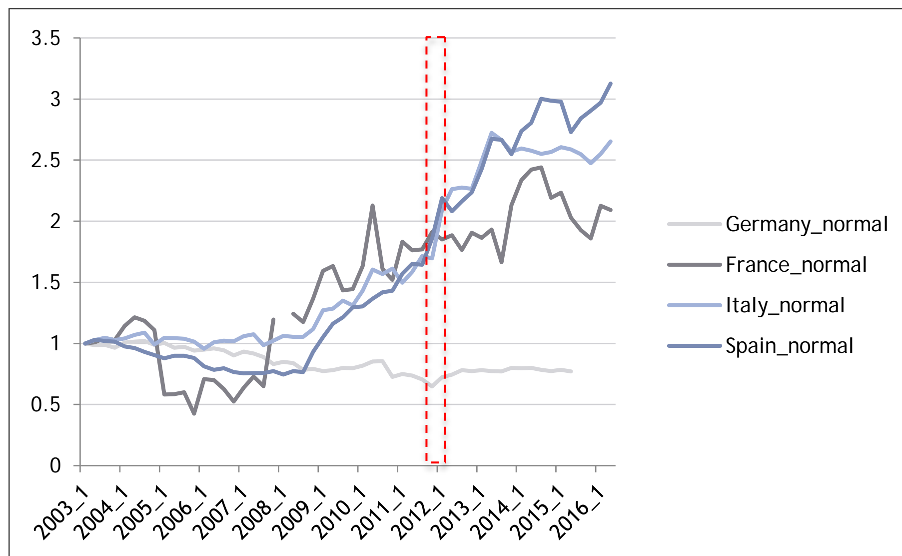
[4] Lautenschläger (2016) provides a recent contribution to the discussion.

In this paper, we develop a simple and straightforward suggestion of how to overcome the doom loop, taking into account the peculiarity of the euro zone in respect to sovereign debt. Specifically, we suggest treating member states' sovereign debt in terms of risk weights without requiring full capital provision for sovereign bonds and without setting too restrictive concentration limits on banks.

3. Current situation

The situation in the euro zone differs from other regions as the nexus between commercial banks, central banks, and sovereigns deviates in one crucial aspect: there is no euro sovereign, hence there are no Eurobonds as the corresponding sovereign debt that the lender of last resort accepts as collateral. Rather, there are national sovereign bonds to which banks are exposed to different levels.

Figure 1: Holdings in EUR by commercial banks (in aggregate) of their home country sovereign bonds by quarter, normalized to Q1/2003. The red box in 2011/12 gives the timing of the two ECB LTRO tranches and their impact on domestic sovereign bond holdings by banks.



Source: Data from Merler and Pisani-Ferry 2012 and 2017.

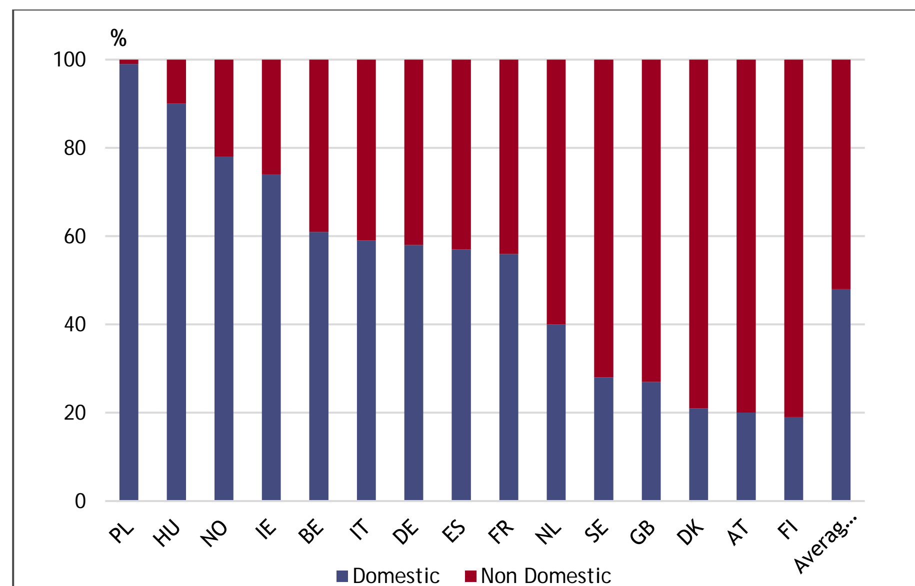
Two very strong patterns emerge:

1. Figure 1 shows that banks in the euro zone have significantly increased their holdings of sovereign debt over recent years (data from Merler and Pisani-Ferry 2012 and 2017). Holdings by commercial banks of own sovereign debt have increased during the recent sovereign crisis – even exacerbating the ‘doom loop’ that has been identified as one of the core problems of the financial crisis. The data show that the increase in France, Italy and Spain started with the financial crisis in 2008. A further marked increase coincides with the introduction of the Longer-Term Refinancing Operation (LTRO) measures in 12/2011 and 03/2012

- underlining the observation at the time that the LTRO facility was primarily used by banks in 'crisis countries' as a means of an increase in domestic sovereign debt holdings.

2. Figure 2 shows that banks exhibit a strong home bias by investing over-proportionally into sovereign debt of the countries in which they are headquartered.

Figure 2: Domestic sovereign exposures in bank portfolios as a fraction of the total sovereign exposures in each institution (average by country for the 51 institutions that participated in the EBA 2016 stress test) as per December 2015.



Source: Banco de Espana 2016.

This home bias can have several reasons:

- It is a common observation in asset allocation decisions – for a summary discussion, see Asonuma, Bakhache, and Hesse 2015.
- Domestic banks have traditionally been regarded as natural allies to sovereign debt managers in the market-making process, which might provide incentives for domestic holdings.

As a result, these patterns have led to bank investments being highly concentrated in their domestic sovereign debt, exacerbating the existing exposure concentration to their respective economy due to their business model and their loan portfolios.

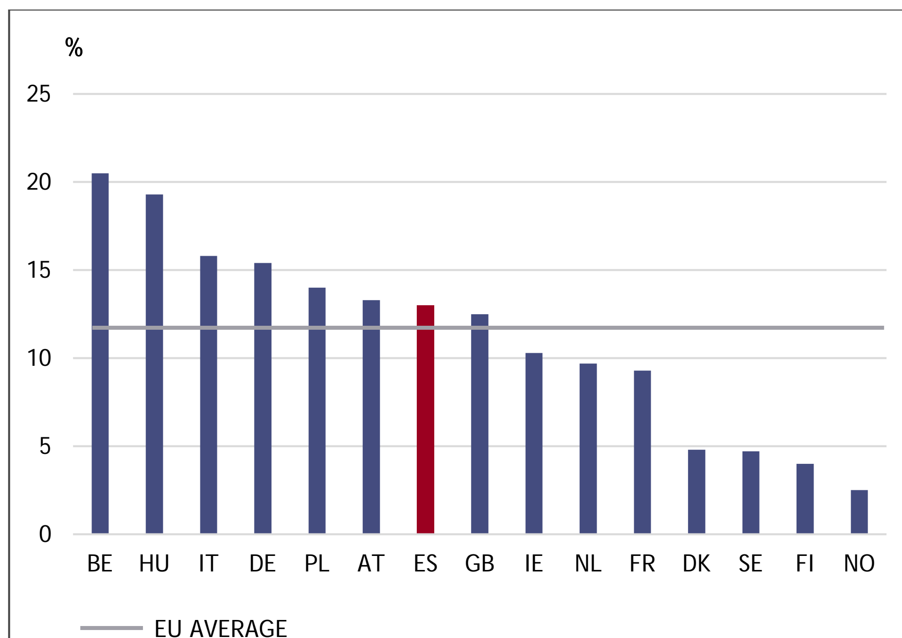
4. A new approach

There are several suggestions on how to tackle this challenge, but none of them could yet be implemented. This is partly due to the concerns raised by those countries that would be most affected by any regulatory changes.

We suggest a new approach, which we call the euro zone basket (EZB). The underlying idea is simple and straightforward: Sovereign bonds are held to a great extent as collateral for liquidity provision by the LOLR. If holdings of this – and only this – type are deemed to be considered in the 'sovereign interest' as part of the inner workings of a banking system, they are exempt from capital requirements. This means that a basket of sovereign bonds corresponding to the ECB capital keys should not require capital – while excess holdings in any bank's sovereign debt holdings (e.g. an overweighting of domestic sovereign debt) should require capital provision.

This approach would work as follows:

Figure 3: Sovereign exposures as a proportion of total exposures. EU comparison as of December 2015 based on the 51 institutions that participated in the EBA 2016 stress test.



Source: Source as in figure 2.

- A bank decides to hold a total position of sovereign debt amounting to S. Currently, this decision is mostly up to the bank without interference by the supervisor, as long as the standard supervisory requirements are fulfilled and the principles respected. Current exposures are shown in figure 3. This analysis shows that many banks are highly exposed to sovereigns – but it also shows that banks in several countries manage their businesses without that excessive exposure to sovereigns. It would be a separate initiative to restrict the total position of sovereign debt to a limit S.
- Any amount of sovereign debt of country i up to a share s_i of the total amount S will be exempt from capitalization with

$$s_i = S * CK_i$$

  where

  s_i is the maximum share of sovereign debt of country i that a bank can hold without capitalizing it.

  CK_i is the capital key of country i in the ECB.[5]
- If the bank was to hold a larger amount a_i of sovereign debt of country i with $a_i > s_i$, then the amount

$$c_i = a_i - s_i$$

  would have to be capitalized with the standard regulatory capital formulas as applicable to debt of the associated risk.[6]
- In order to avoid serious concentrations, a concentration limit could apply. This concentration limit (as a proportion of S) should depend on the share s_i of each country i with a buffer of X, e.g.

$$Limit_i = s_i + X.$$

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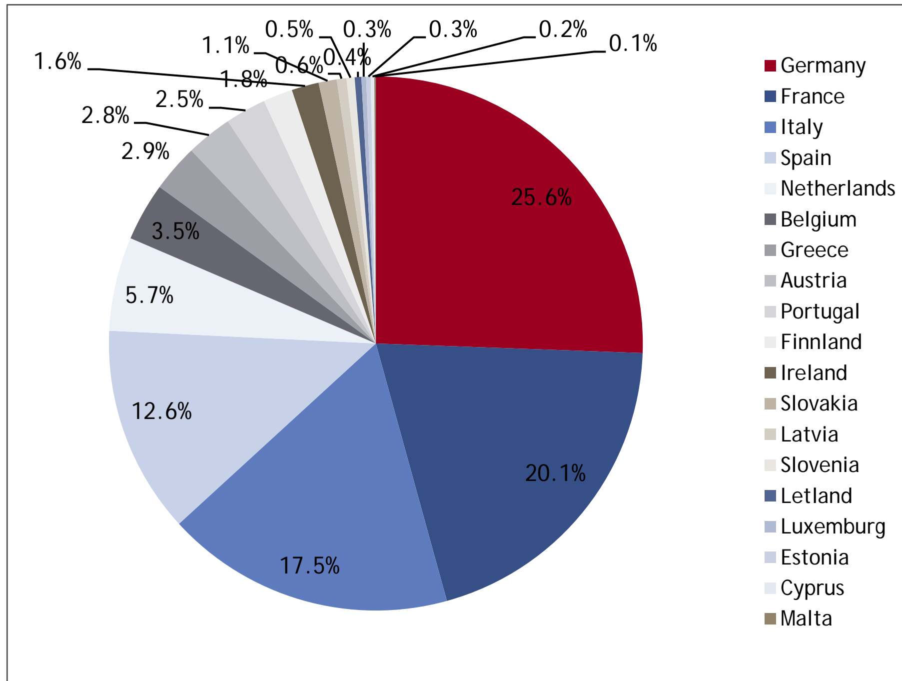
[5] Measured as a fraction of the total amount of capital that is eligible for profits, i.e. the capital shares of the euro zone countries, see figure 4.

[6] Bank for International Settlements (BIS) 2013 gives the associated risk weights.

Figure 4: Capital key fractions of the countries that are entitled to profits of the European Central Bank as of January 1, 2015.



Source: European Central Bank, www. ecb-europa.eu, names of countries above 1% capital key fraction are given.

- Sovereign debt with a non-investment grade rating has to be fully capitalized according to the standard capital requirements for risky investments and cannot be exempt from capitalization according to the approach described above. This is due to the underlying assumption that the exemption of sovereign debt from capital requirements is its risk-free nature. Any debt in violation of this assumption thus has to be excluded from the exemption.

There are several advantages of this approach:

- It is consistent with the standard notion of the central bank as lender of last resort (LOLR): The fundamental reason why banks hold significant portfolios of sovereign debt is its use as standard collateral

with their central bank (hence the 'banking representative' of this very sovereign) in the central bank's function as LOLR.[7]

- It provides an incentive for commercial banks to hold a basket of European sovereign bonds as collateral for provision of liquidity by the European Central Bank and hence fosters euro zone financial integration. This is one of the aims of the European Central Bank (ECB, 2017): *"The ECB fosters European financial integration within its field of competence. A well-integrated financial system contributes to a smooth and effective implementation of monetary policy throughout the euro area and increases the efficiency of the euro area economy"*. Deviations from this basket are allowed, but they have to be fully capitalized as any other business that a bank pursues.
- It avoids an approach via strict 'concentration limit setting' for the holdings of local sovereign bonds e.g. by the regulator. Limit setting, rule-based approaches always have the drawback of being inflexible, bureaucratic, and potentially lead to political influence on asset allocation decisions by private banks. Specifically, limits only forbid excessive holdings of domestic bonds without increasing their attractiveness to other investors (e.g. non-domestic banks). The approach outlined here also increases relative attractiveness of that sovereign debt to other euro zone banks since it still comes with a zero risk weight for them once they exceed their respective domestic debt limits. Hence, it becomes more attractive for banks from other euro zone member states to invest in other euro zone sovereign debt.
- In contrast to alternative suggestions such as 'European Safe Bonds' (ESBies) by Brunnermeier et al. (2016), the EZB avoids the disadvantage of adding yet another layer of securitization complexity and the associated risks for market liquidity, and it does so in a transparent manner.

Going forward, a guardrail approach should be used guiding the capital treatment of sovereign bonds from the current regime of the (incorrect) assumption of risk-free sovereign debt to the future regime of no capital being held for the sovereign fraction in the ECB capital. The guardrails will ensure a smooth transition over the next years, so as to avoid problems with bank capital availability and the already existing imbalanced sovereign bond books in banks. If for example a transition period of N years is being decided upon and a target capital requirement depending on the

7 For a recent overview of the historical discussion of a central bank's function as LOLR, see Bindseil, 2014, see 235ff.

risk of each country i, then the capital requirement from today until year N should rise proportionally from zero to the target capital requirement for the holdings of each country i. This allows for a smooth transition period from the current regime to the new regime in a manageable, consistent, and transparent way.

Furthermore, the outlined method constitutes an approach that is markedly different from suggestions that include pooling. These suggestions have one or several aspects in common: Sovereign debt is pooled by a central counterparty according to a defined relative weighting of the sovereigns in the euro zone. Banks then hold those pooled instruments instead of sovereign bonds of the individual sovereigns. Pooling suffers from several serious drawbacks:

1. Pooling requires a central counterparty for both pool securitization and market making.
2. There are different relative amounts of sovereign debt in the market. A pool can only be created up to the limiting factor of the *smallest* amount of debt by a country. The question then arises what to do with the debt of countries with relatively higher debt. If banks are allowed to hold that debt directly, too, the pool renders itself irrelevant. If that debt is not to be held by banks, it cuts off a significant market for those sovereigns - leading to all associated problems.
3. Any fixed proportion pool prescribes a public asset portfolio composition to the banks, which might not be in line with those private banks' risk and return appetite. It lies in the nature of any debt pooling to be static, simplistic and inflexible and hence unfit to replace such a complex and multi-nomial market as sovereign debt holdings by banks.

Additionally, tranching has been suggested as a way to create debt instruments that tend to different investors' risk appetites. However, tranching has even more disadvantages than pooling:

1. Pooling is a prerequisite for tranching – hence all the associated drawbacks of pooling pertain to tranching as well.
2. Additionally, individual tranches show even less liquidity than that of the pooled instrument already. Hence a market maker needs to ensure tranche liquidity and will therefore bear most of the underlying risk.
3. Leading rating agencies have already ruled out that tranching can be an option (Kraemer 2017): Tranching as a way to create 'low risk' high rated assets will fail in the context of tranched euro zone sovereign bonds due to high sovereign correlations and the lack of high rated euro zone

sovereign bonds. Hence, tranched and pooled sovereign assets will *reduce* the availability of high rated assets (Kraemer 2017).

Our approach reduces the sovereign-bank nexus in a way that combines the advantages of other approaches while avoiding their difficulties:

- It does not require banks to hold capital for their entire sovereign portfolio.
- It does not require any pooling or tranching by any central or mandated authority and thus avoids the associated serious drawbacks of market illiquidity and the existence of a risk-taking market maker of last resort to prevent sudden stops.
- It does not involve any default risk mutualization or permanent debt responsibility transfers and hence continues to exert market discipline in the euro zone sovereign debt area.
- It fosters euro zone financial integration.

The current *home bias* in sovereign debt holdings is a sign of euro zone financial ***dis***integration and its reversal is a prerequisite to any further steps towards a banking union. Being realistic, the feedback loop between financial institutions and their domestic sovereigns cannot be broken completely – but bringing it back to economically reasonable amounts will be a first step to achieve institutional perpetuity for both sovereigns and banks and thus for deeper European economic integration.

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