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**Doom Loop or Incomplete Union? Sovereign and Banking Risk**

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# Doom Loop or Incomplete Union? Sovereign and Banking Risk<sup>1</sup>

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## Abstract

This chapter discusses the foremost regulatory advances and policy proposals for the so-called “doom loop”, i.e. the perverse and destabilizing interconnections between sovereigns’ and banks’ liabilities. We discuss how the merits of the proposed regulatory reforms are strictly intertwined with the mechanisms of risk sharing being built up and implemented within the Banking Union, and more broadly within the Eurozone. We argue that it is very unlikely that there might be viable solutions to the regulatory treatment of Sovereign exposures without a strengthening of risk-sharing mechanisms.

Revised version, March 11, 2019

## 1. Introduction

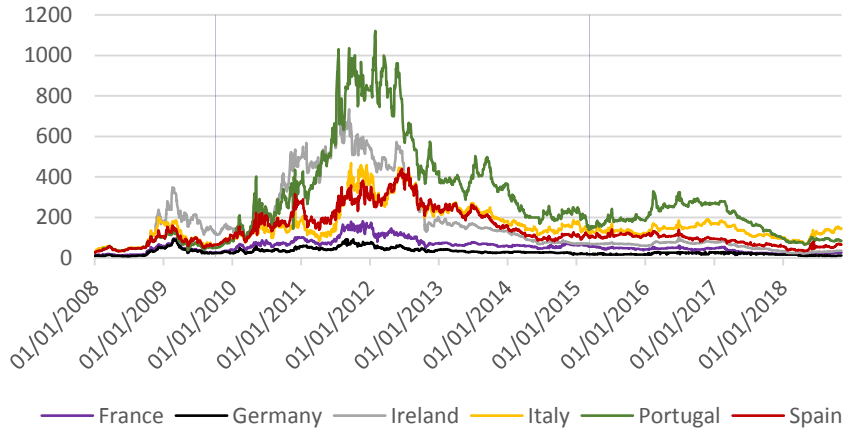
The “deadly embrace”, the “vicious circle”, the “diabolic loop”. And finally, the ‘doom loop’. These evocative expressions refer to the perverse effects of the interconnection between sovereigns’ and banks’ liabilities that emerged as a key feature of the financial crisis started in 2007-2008, and especially of the sovereign crisis in Europe between 2010 and 2015. In some countries, it was initially the severity of the banking crises that forced the government to support and bailout banks, causing a surge in the public deficit and contributing to the subsequent domestic sovereign bond crisis (in Ireland, for example). In other cases, it was the sovereign debt crisis that caused the instability and, sometime, the collapse of the domestic banking sector (for example, in Greece). This two-way link is well known to investors, as illustrated in Figure 1, which reports the high correlation between sovereign CDS and bank CDS premia, respectively. Although improvements have taken place in the last years, recent political tensions in Italy and the still very high exposure of Italian banks towards their sovereign have brought the diabolic loop issue back once more as a central concern of the Euro area, and of the European Union as a whole.

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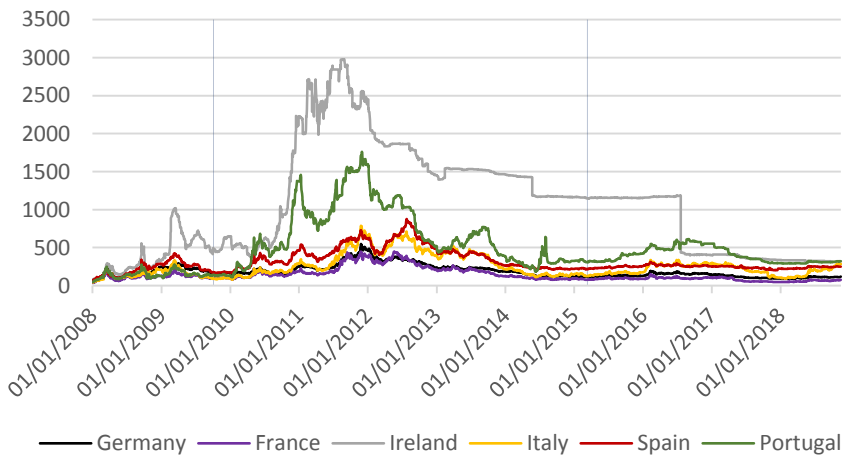
<sup>1</sup> Paper prepared for European Banking Union, Second Edition, edited by Danny Busch and Guido Ferrarini. This is a revised and updated version of the European Economy editorial. Banks Regulation and the Real Sector, issue 2016.1; The work of Giorgio Barba Navaretti for this draft was carried out within the Centro Studi Luca d’Agliano’s project on Banks and Global Stability.

<sup>2</sup> Respectively: University of Milan and Centro Studi Luca d’Agliano; European University Institute, CEPR and Centro Studi Luca d’Agliano; Universidad Pública de Navarra and Centro Studi Luca d’Agliano; University of Molise and Centro Studi Luca d’Agliano.

**Figure 1**  
**10 years Credit Default Swaps (CDS) on sovereign bonds**



**5 years Credit Default Swaps (CDS) on banks**



Source: Authors' elaboration based on data from Thomson Reuters Datastream. This figure represents 10 years of CDS prices on sovereign bonds and 5 years of CDS prices on banks for France, Germany, Ireland, Italy, Portugal, and Spain. The vertical lines represent the beginning of the sovereign debt crisis (October 2009) and the Quantitative Easing (March 2015), respectively. Data are represented in basis points.

The Single Supervisory Mechanism (SSM), one of the pillars of the Banking Union, was established precisely to cut this perverse link, as reported clearly in the Euro Area Statement from the 28-29 June 2012 Summit: *“We affirm that it is imperative to break the vicious circle between banks and sovereigns. The Commission will present Proposals on the basis of Article 127(6) for a single supervisory mechanism shortly.”*

Yet, whereas the Banking Union covers one side of the loop – the risk that banks’ crises end up on the shoulders of tax payers – this is not the case for the other side of the loop, which considers how too much exposure towards home sovereign bonds weakens banks’ balance sheets.

The combined action of two of the three pillars of the Banking Union, as yet fully or partially implemented (enhanced and centralised supervision, higher capital requirements, a resolution framework with bail-in procedures) do effectively transfer a large share of bank risks and of the costs of banks’ resolution from tax payers to investors. The third pillar, yet to be implemented, is a common European Deposit Insurance Scheme (EDIS) which introduces a risk sharing mechanism among Euro countries that partly reduces the direct link between national tax payers and national failing banks. And although the Union is still incomplete and the risk of missteps during transition is high, nevertheless the institutional design is there, and, arguably, it will be fully implemented in the foreseeable future.

Nonetheless, the present regulatory framework in Europe still considers banks’ exposure towards domestic sovereign bonds as risk free. It grants very favourable provisions in terms of large exposure limits towards these assets (a similar framework currently applies also to the US), even though measures concerning the leverage ratio or the treatment of gains and losses in the sovereign bonds already impose some prudential containment.<sup>3</sup>

The debate on how to deal with this risk is fierce and very divisive. Several banks and governments in the more vulnerable European countries are extremely reluctant to tightening the regulatory framework, which would raise capital requirements and limit the size of sovereign exposures. Others in less vulnerable countries, as well as a significant share of the academic and institutional community, argue instead that these steps are urgent and appropriate to enhance the financial stability of the European Union.

In this chapter we will discuss a few key ingredients to this debate. The first one has to do with the time frame of the analysis: there is a distinction between what was done and should have been done during the very special times of the financial and the sovereign crisis from what can and should be done under more “normal” circumstances. In fact, there are never normal circumstances, especially when countries have fiscally fragile sovereigns and or/banks with large exposures toward their sovereign. High interest rates on treasuries and large public debt are once more the case in Italy today, showing how any incident of political instability and not credible policy making can bring severe distress to financial markets in Italy and Europe. Yet, events between 2007 and 2014 were certainly exceptional, in terms of the geographic and time span of the crisis. We will therefore discuss first this period and then possible paths towards normalisation and a long run equilibrium.

The systemic implications and hazards of the diabolic loop are very different in countries with their own central bank and currency, and in countries that belong to a Monetary Union, like the Euro area. In the latter case, the implicit mechanisms of risk and burden sharing among member states (or the lack of explicit ones), and the constraints faced by the central bank in supporting sovereigns of single member states, crucially affect the terms of the debate.

At the inception of the crisis several countries were of course extremely vulnerable because of the excessive deficits and debts and of the weak balance sheets of their banks. Yet, because of

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<sup>3</sup> Visco, I. (2016), Banks’ Sovereign Exposures and the Feedback Loop Between Banks and Their Sovereigns. Concluding Remarks presented at the Euro50 Group Conference on The Future of European Government Bonds Markets, 2 May.

Eurosystem's inability to act swiftly and thoroughly in supporting individual sovereigns, or in supporting economic activities – programmes like the Outright Monetary Transactions (OMT) or the Quantitative Easing (QE) had not yet been established –, of the lack of a Banking Union and of an effective mechanism of fiscal support among Member States, the Euro area had no tools to tame the build-up of the vicious circle. The loop was indeed diabolic, but to a large extent unavoidable in such an institutional setting.

Effective mechanisms of risk sharing have been implemented thereafter or are envisaged by the institutional reforms that took place during and in the aftermath of the crisis. These mechanisms make the loop less dangerous today than during the financial crisis.

Nonetheless, precisely because risk sharing mechanisms are in place at the monetary and fiscal level, hence increasing burden sharing and moral hazard, it has now become topical to deal with the inherent different levels of riskiness of European Sovereigns. This is of course a task for “normal” times, one that requires a careful institutional design and a sufficiently long transition period.

A crucial issue in this debate is understanding what constitutes a risk free asset. Therefore, in what follows we first discuss whether – and under what circumstances – sovereign liabilities should be considered as risky. We then discuss the high momentum of the crisis and what was and should have been done to tame the diabolic loop in the monetary union. Next, we examine the state of the debate on the optimal setting in normal times, and on the path towards such an equilibrium.

## **2. Are sovereigns risky?**

Sovereign bonds can indeed be risky, even though their probability of defaulting is low.<sup>4</sup> Dramatic busts, like Argentina's in 2002, remind us that mismanaged economic policies can lead countries to default on their sovereign debt, with dramatic consequences for the population. And the 2011 partial default of Greece reminds us that they can occur also in Europe and within the Euro area.

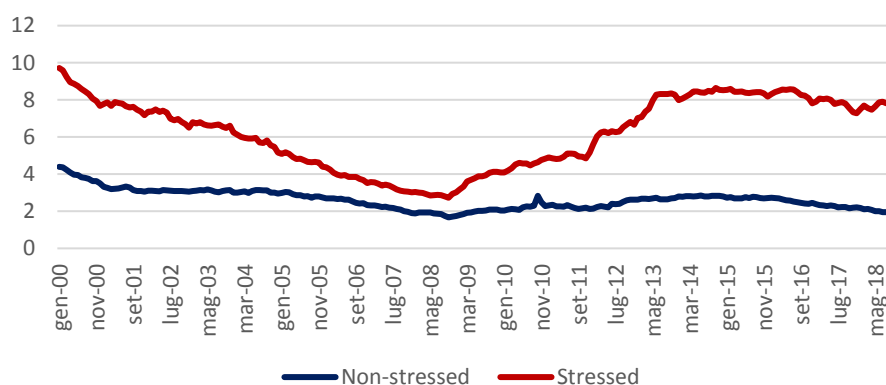
The European banking crisis has cast doubts on the fragility of banks exposed to mark-to-market losses and impairments on sovereign bonds issued by what became known as the peripheral GIIPS countries (Greece, Ireland, Italy, Portugal, and Spain).<sup>5</sup> Since the outburst of the financial crisis, the amount of sovereign bonds held by banks, especially those based in such countries, increased considerably (Figure 2).

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<sup>4</sup> No OECD country defaulted on its domestic debt between 1950 and 2010. See Reinhart C. M., and Rogoff, K. S. (2008). The forgotten history of domestic debt. NBER Working Paper 13946.

<sup>5</sup> See also Acharya, V., and Steffen, S. 2015. The ‘Greatest’ Carry Trade Ever? Understanding Eurozone Bank Risks. *Journal of Financial Economics*, 115, 215-236. Acharya, V., Drechsler, I., Schnabl, P. (2014). A pyrrhic victory? Bank bailouts and sovereign credit risk. *Journal of Finance*, 69, 2689-2739.

**Figure 2: Share of domestic sovereign bonds held by MFIs to total assets**



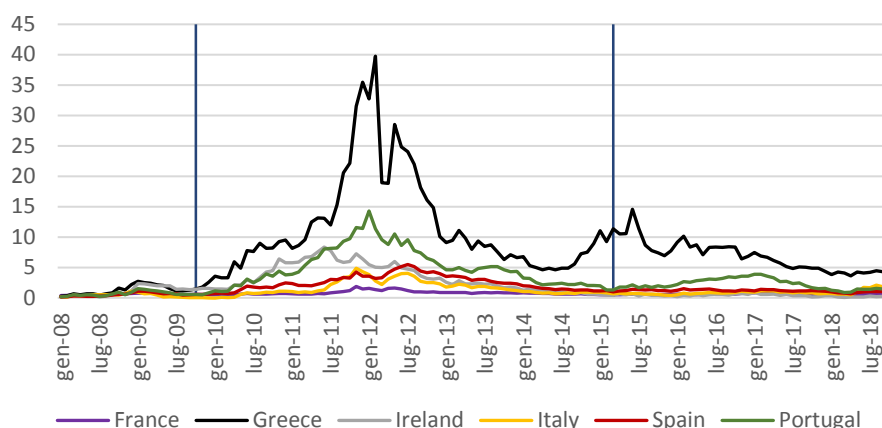
*Source:* Authors' elaboration based on data from European Central Bank's Statistical Data Warehouse. Ratio of the holdings of domestic sovereign debt and total assets by MFIs in each country. Data are expressed in percentage points. Non-stressed countries are Austria, Belgium, Finland, France, Germany, and the Netherlands. Stressed countries are Greece, Ireland, Italy, Portugal, and Spain.

The riskiness of sovereigns does indeed vary considerably within the Eurozone. Brunnermeier et al. (2016) provide a thorough assessment of the heterogeneity of countries of the Euro area (as of December 2015).<sup>6</sup> Averaging out and indexing Moody's and S&P scores, they rank Euro countries on a scale from 1 (AAA) to 19 (CCC-). Only Germany, Netherlands and Luxembourg have a score of 1. As for the GIIPS, Ireland has 6.5, Spain 9.0, Italy 9.5, Portugal 12 and Greece 19. The expected loss rates in a benchmark scenario range from 0.45 for safe countries to 34.16 for Greece. Even though this is to a large extent an inheritance of the crisis, it persists now that we are sailing in relatively calmer waters.

The evidence that sovereign risk increased during the crisis and that a large share of this risk is borne by banks, especially in vulnerable countries, is indeed strong. Several indicators support this view. First, the rapid and generally parallel rise in the price of CDS on sovereigns and banks already documented in Figure 1. Second, the rapid rise of spreads between the interest rates paid on the sovereign of periphery countries as reported in Figure 3 below.

**Figure 3: Spread between 10 years sovereign bonds and the 10 years German bund.**

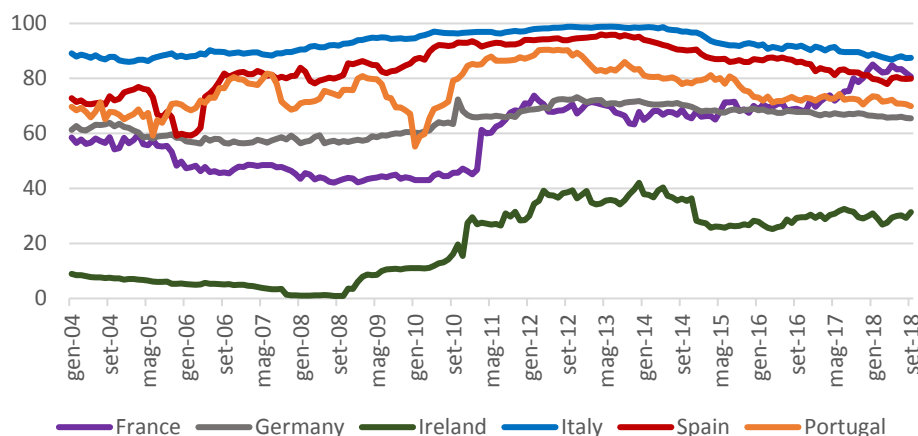
<sup>6</sup> Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2016). The Sovereign-Bank Diabolic Loop and ESBies. American Economic Review Papers and Proceedings, 106, May 2016.



Source: Authors’ elaboration based on data from Thomson Reuters Datastream. This figure represents the difference between the 10-years sovereign bonds for France, Greece, Ireland, Italy, Spain, and Portugal, with respect to the 10-years German bund as benchmark. The vertical lines represent the beginning of the sovereign debt crisis (October 2009) and the Quantitative Easing (March 2015), respectively. Data are expressed in percentage points.

Third, the “home country bias” of these assets, i.e. the dominant share of home sovereigns on total sovereigns held by banks, once more especially in stressed GIIPs countries (Figure 4).

**Figure 4: Home bias: Share of domestic sovereign bonds to total sovereign bonds held by MFIs**



Source: Authors’ elaboration based on data from European Central Bank’s Statistical Data Warehouse. Ratio of domestic sovereign debt to total Eurozone sovereign debt. Data are expressed in percentage points.

Several papers have analysed the recent surge in sovereign risk econometrically, identifying a quite convincing causal spiral between the share of sovereign assets and the frailness of banks’ balance sheets.<sup>7</sup> Altavilla et al. (2017) calculate that in GIIPs countries a 100-basis-point increase in

<sup>7</sup> See Acharya, V.V., Eisert, T., Eufinger, C., and Hirsch, C. (2018). Real Effects of the Sovereign Debt Crisis in Europe: Evidence from Syndicated Loans. *Review of Financial Studies*, 31, 2855-2896. Altavilla, C., Pagano, M., and Simonelli, S. (2017). Bank Exposures and Sovereign Stress Transmission. *Review of Finance*, 21, 1-37. Bofondi, M., Carpinelli, L., and Sette, E. (2018). Credit supply during a sovereign debt crisis. *Journal of the European Economic Association*, 16, 696-729.

the domestic sovereign CDS premium translated into a 31.5-basis-point increase in the CDS premium of a bank with a median exposure to sovereigns.<sup>8</sup>

The empirical evidence also suggests that banks with a high exposure to sovereign debt lend less to the real sector, with negative implications for economic growth, which fires back into reduced fiscal revenues, which in turn exacerbates sovereign vulnerability (Figure 5). Several papers have addressed this issue, showing that sovereign exposures crowd out credit to the private sector (Angelini et al., 2014; Arteta and Hale, 2008; Battistini et al., 2014, Correa et al., 2016; De Marco, 2018; Dell’Ariccia 2018; Gennaioli et al., 2014a,b; Popov and Van Horen, 2015; Williams, 2018; Pietrovito and Pozzolo, 2019).<sup>9 10</sup>

Acharya et al. (2018) find that value impairment in banks’ exposures to the European sovereign debt and the risk-shifting behaviour of weakly capitalized banks explains between 44% and 66% of lending reductions suffered by European non-financial firms.<sup>11</sup> Bofondi et al. (2018) show that Italian banks reduced credit supply and increased the price for loans more than foreign banks, which were comparatively less affected by the sovereign debt crisis. They argue that credit contraction is the consequence of a generalized increase in the cost of funding associated to country-specific effects instead of bank-heterogeneity characteristics.<sup>12</sup>

### **Figure 5: Loans to the non-financial private sector and sovereign debt holdings before and after the financial crisis**

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<sup>8</sup> Altavilla, C., Pagano, M., and Simonelli, S. (2017). Bank Exposures and Sovereign Stress Transmission. *Review of Finance*, 21, 1-37.

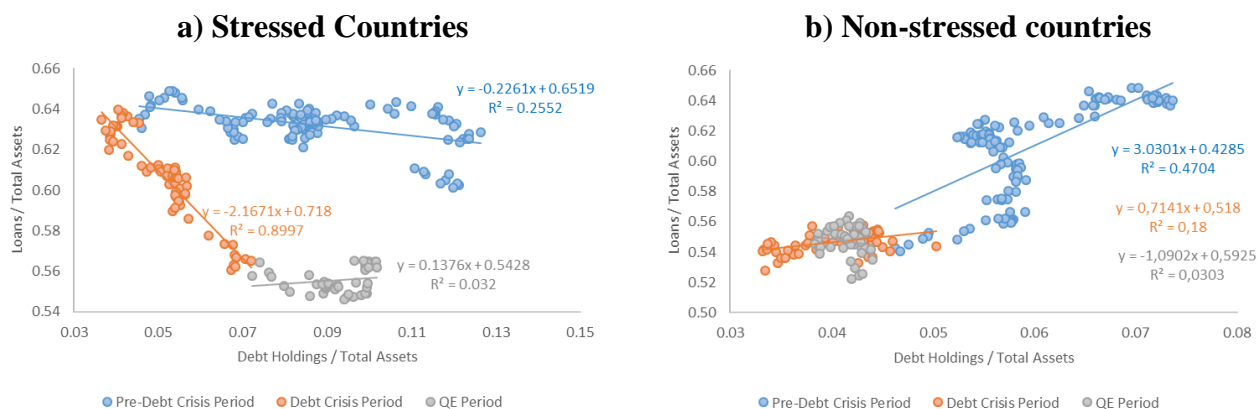
<sup>9</sup> Correa et al. (2016) show that carry-trade strategies in Europe caused a reduction also in lending by the US branches of European banks, with a negative impact on US corporate investment. Correa, R. Sapriza, H., and Zlate, A. (2016). Liquidity shocks, dollar funding costs, and the bank lending channel during the European sovereign crisis. Risk and Policy Analysis Unit Working Paper RPA 16-4, Federal Reserve Bank of Boston.

<sup>10</sup> Angelini, P., Grande, G., and Panetta, F. 2014. The Negative Feedback Loop between Banks and Sovereigns. Occasional Paper No. 213, Banca d’Italia, Rome, Italy. Arteta, C., and Hale, G. (2008). Sovereign debt crises and credit to the private sector. *Journal of International Economics*, 74, 53-69. Battistini, N., Pagano, M., and Simonelli, S. 2014. Systemic Risk, Sovereign Yields and Bank Exposures in the Euro Crisis. *Economic Policy*, 29, 203–51. Correa, R. Sapriza, H., and Zlate, A. (2016). Liquidity shocks, dollar funding costs, and the bank lending channel during the European sovereign crisis. Risk and Policy Analysis Unit Working Paper RPA 16-4, Federal Reserve Bank of Boston. De Marco, F. (2018). Bank Lending and the European Sovereign Debt Crisis. *Journal of Financial and Quantitative Analysis*, forthcoming. Dell’Ariccia, G., Ferreira, C., Jenkinson, N., Laeven, L., Martin, A., Minoiu, C., Popov, A. (2018). Managing the sovereign-bank nexus. European Central Bank Working Paper Series No. 2177. Gennaioli, N., Martin, A., and Rossi, S. (2014a). Banks, government bonds, and default: What do the data say? IMF Working Paper 14/120, International Monetary Fund, Washington, DC. Gennaioli, N., Martin, A., and Rossi, S. (2014b). Sovereign default, domestic banks, and financial institutions. *Journal of Finance*, 69, 819–66. Popov, A., and Van Horen, N. (2015). Exporting Sovereign Stress: Evidence from Syndicated Bank Lending during the Euro Area Sovereign Debt Crisis. *Review of Finance*, 19, 1825-1866. Williams, T. (2018). Capital Inflows, Sovereign Debt and Bank Lending: Micro-Evidence from an Emerging Market. *Review of Finance*, forthcoming. Pietrovito, F., and Pozzolo, A.F. (2019). Credit constraints and firm exports: Evidence from SMEs in emerging and developing countries. Centro Studi Luca D’Agliano. Development Studies Working Papers. University of Milan.

<sup>11</sup> Acharya, V.V., Eisert, T., Eufinger, C., and Hirsch, C. (2018). Real Effects of the Sovereign Debt Crisis in Europe: Evidence from Syndicated Loans. *Review of Financial Studies*, 31, 2855-2896.

<sup>12</sup> Bofondi, M., Carpinelli, L., and Sette, E. (2018). Credit supply during a sovereign debt crisis. *Journal of the European Economic Association*, 16, 696–729.

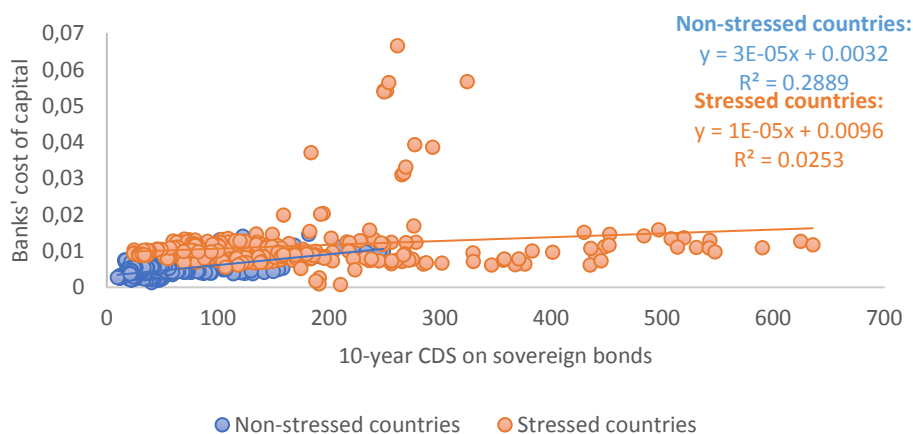




Source: Authors' elaboration based on data from European Central Bank's Statistical Data Warehouse. Non-stressed countries are Austria, Belgium, Finland, France, Germany, and the Netherlands. Stressed countries are Greece, Ireland, Italy, Portugal, and Spain. 'Pre-Debt Crisis Period' includes monthly observations between January 2000 and September 2009. 'Debt Crisis Period' comprises the period between October 2009 and February 2015. 'QE Period' ranges from March 2015 to September 2018.

Altavilla et al. (2017) also calculate that a 1-standard-deviation drop in the price of government bonds reduced the loan growth of the median domestic bank by 1.4 percentage points, i.e. 20% of the standard deviation of loan growth.<sup>13</sup> Increases in the 10 years CDS on sovereign bonds also cause a raise in banks' cost of capital (Figure 6), which diminishes lending and liquidity supply.<sup>14</sup>

**Figure 6: Correlation between banks' cost of capital and 10-year CDS on sovereign debt**



Source: Authors' elaboration based on Thomson Reuters Datastream. The bank's cost of capital is defined as the return required by investors for equity investment. We follow the standard CAPM model to compute the cost of capital ( $r_{it}$ ) which is a direct function of the return of the risk-free asset ( $R_{it}^f$ ) plus the compensation for bank  $i$ 's undiversifiable risk, namely equity market risk premium. The cost of capital is defined as:  $r_{it} = R_{it}^f + (E(R_t^m) - R_{it}^f)\beta_{it}$ . We take the 10-

<sup>13</sup> Altavilla, C., Pagano, M., and Simonelli, S. (2017). Bank Exposures and Sovereign Stress Transmission. Review of Finance, 21, 1-37. See De Marco, F. (2018). Bank Lending and the European Sovereign Debt Crisis. Journal of Financial and Quantitative Analysis, forthcoming; and Popov, A., and Van Horen, N. (2013). The Impact of Sovereign Debt Exposure on Bank Lending: Evidence from the European Debt Crisis. DNB Working Paper No. 382., for similar results.  
<sup>14</sup> Chiesa, G., and Mansilla-Fernández, J.M. (2018). Disentangling the Transmission Channel NPLs-Cost of Capital-Lending Supply. Applied Economics Letters, forthcoming.

years sovereign bond yield as the risk-free rate ( $R_{it}^f$ ). The variable of interest is the Beta CAPM ( $\beta_{it}$ ), which is calculated as the regression slope between bank  $i$ 's equity return ( $R_i$ ) and the EUROSTOXX Banks return ( $R_m$ ) as given:  $\beta_{it} = \frac{Cov(R_i, R_m)}{Var(R_m)}$ . The Beta CAPM is estimated by using a 24-months rolling window for each bank  $i$ , since betas might change significantly over time. The equity market risk premium includes the historical mean of the realized EUROSTOXX Banks returns exceeding the contemporaneous  $R_{it}^f$  over the past 60 months. Non-stressed countries are Austria, Belgium, Finland, France, Germany, and the Netherlands. Stressed countries are Greece, Ireland, Italy, Portugal, and Spain. The horizontal axis, *10-year CDS on sovereign bonds*, is represented in basis points. The horizontal axis, *banks' cost of capital*, is measured in units.

### **3. What was done and should have been done? Banks and sovereigns during the crisis and the specificities of a monetary union**

*The first issue relates to the sustainability of sovereigns.* Is a monetary union a special case, if a fiscal union is absent? There are indeed crucial differences between the financial sustainability of sovereign debt in a country with its own currency and in a country that is part of a monetary union.

The first one is that the role played by central banks is different. In the former, even though Central banks are independent and do not finance sovereigns directly, they can still intervene in the secondary market and act as a sort of indirect lender-of-last-resort to governments in times of distress. In fact, during the crisis, the US Federal Reserve and the Bank of England rapidly adopted a program of quantitative easing (QE), purchasing large amounts of long term bonds, including sovereign bonds. At the moment, they own 11.5% and 24.2% of all outstanding public domestic bonds, respectively.<sup>15</sup> The Bank of Japan owns a similar share. Even though the final aim of QE was to act countercyclically against deflation and recession, in fact it also supported the price of sovereign debt in secondary markets. For example, Hoshi and Ito (2014) argue that the fact that a country like Japan with a debt to GDP ratio of over 230% has much higher credit ratings than Euro area members with less distressed public finances is not only due to the high saving ratio in the Japanese economy, but also to the home bias of domestic institutional investors, which have a strong aversion to exchange rate risk. Clearly this would be very different if Japan were a member of a monetary union.<sup>16</sup>

However, in the case of a monetary union, especially at its start, as it was the case of the Eurozone at the beginning of the crisis, any intervention by the central bank in support of distressed sovereigns can be seen as an unwarranted backing of some individual member country at the expense of others. For this reason, the institutional setting, and ability to reach the necessary consensus within the decision bodies limits the ability of the central bank to intervene in the government bond market. The Eurosystem's long delay in implementing a QE program in comparison with the Federal Reserve, the Bank of England and the Bank of Japan, despite the low aggregate demand and the deflationary pressures, is a clear example of such difficulties.

The second difference is that a sovereign-bank crisis loop in one country can cause severe negative externalities to other countries of a monetary union, and this calls for a stronger mutualisation of sovereign risks, for example through mechanisms of fiscal solidarity. Fiscal risk sharing and the intervention by a monetary authority in the sovereign bond markets are complementary measures.

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<sup>15</sup> Bruegel (2018). Bruegel database of sovereign bond holdings developed in Merler and Pisani-Ferry (2012), "Who's afraid of sovereign bonds", Bruegel Policy Contribution 2012|02.

<sup>16</sup> Hoshi, T., and Ito, T. (2014). Defying gravity: can Japanese sovereign debt continue to increase without a crisis? *Economic Policy*, 29, 5-44.

The presence or even the presumption of a transfer from fiscally sound to fiscally vulnerable countries may compensate for the limited degrees of freedom of the central bank within a monetary union.

The explosion of the Euro area's sovereign debt crisis is of course related to the severe distress of banks and sovereigns' financial conditions in several countries, but, to a large extent, it is also related to the fact that after the financial crisis of 2007-2008 neither of the two mechanisms – the intervention of the monetary authority in the bond market, and a fiscal risk/burden sharing – were active. Frisell's account (2016) of the Irish crisis is especially explicit in this respect. In Ireland, there was an instantaneous build-up of bilateral banks-sovereign exposures, as banks were recapitalised with debt instruments (IOU notes for about 30 billion, 15% of Irish GDP) issued by the Government. This bold policy choice, which simultaneously put public and bank's balance sheets at hazard, had no alternative at the time, since Ireland also no longer had access to the security market.<sup>17</sup>

Eventually, the perverse spiral of the crisis was tamed through the implementation of risk sharing mechanisms (the European Financial Stability Facility, EFSF, the European Stability Mechanism, ESM, the sequence of interventions in support of Greece), the activation of a large program of collateralised liquidity lending in support of banks by the ECB (the large Long-Term Refinancing Operations, LTRO, in December 2011 and February 2012, in which sovereigns were used as collaterals), the announcement of a program of direct purchase of bonds in the secondary market of countries in distress, joint with the interventions of the ESM (the Outright Monetary Transactions program, OMT, implicitly announced with the famous London speech by Mario Draghi in the Summer of 2012, and that as for now has never been used),<sup>18</sup> and finally the activation of the QE program.

*The second issue is the perspective of banks. Was buying sovereigns a rational strategy?* Within a monetary union, banks' perspective is also special, particularly in vulnerable countries. As shown in Altavilla et al. (2017), thinly capitalised banks in the GIIPs held a higher concentration of their assets in the form of domestic sovereign bonds; and during the crisis the rise in the purchase of sovereign bonds was much more prominent in these countries than elsewhere. These banks made large carry-trade profits, especially after the “whatever it takes” speech, funding the bond purchases with the liquidity windows provided by the ECB, and using those same bonds as collateral. Such strategies clearly made these banks even more exposed towards sovereign risk.<sup>19</sup>

Yet, what alternative strategies did these banks have during the unfolding of the sovereign crisis? Could they have lent more to the private sector instead of the sovereign? This is unlikely, given that they had limited equity, and therefore had to contain investment in capital absorbing assets like loans to the private sector; and they were also constrained on the liability side, because of the large funding

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<sup>17</sup> Frisell, L. (2016). Europe's regulatory treatment of banks' sovereign exposures – How a flawed framework was put to use in the Irish financial crisis. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 105-117.

<sup>18</sup> “*Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough. (...) The short-term challenges in our view relate mostly to the financial fragmentation that has taken place in the euro area.*” Speech by Mario Draghi, President of the European Central Bank at the Global Investment Conference in London, July 26, 2012.

<sup>19</sup> Altavilla, C., Pagano, M., and Simonelli, S. (2017). *Bank Exposures and Sovereign Stress Transmission*. *Review of Finance*, 21, 1-37.

gap at the peak of the crisis , as well as the need of sovereign securities as collateral to access the liquidity provision by the ECB.<sup>20</sup>

But even if they had managed to increase their loan supply, would lending to the private sector have improved their risk profile? Again, this is also unlikely, given the build-up of non-performing loans during recession.

Finally, could banks have reduced the size of their balance sheets and the extent of carry-trade in sovereign bonds? In fact, disintermediation did take place, at least to some extent: total assets of European banks declined in the aftermath of the sovereign debt crisis. But an even stronger deleveraging by more exposed banks would have further reduced their profitability, worsened their capital position and therefore reduced lending to the economy even more than what we have observed.

In other words, even if a more stringent regulation had discouraged banks from buying sovereigns in the aftermath of the crisis, it is far from obvious that the outcome in terms of financial stability would have been better.

*The third issue is the extent of the home bias in sovereign purchases.* Was buying domestic sovereign bonds a rational strategy for banks in vulnerable countries? Indeed, banks could have bought sovereigns issued by safer member countries. Why did banks in vulnerable countries concentrate such a large share of their investments in home sovereigns? Figure 4 clearly shows how the home bias was much larger for vulnerable than non-vulnerable countries.

There are several explanations for this behaviour. The first one is the “*carry-trade*” motive:<sup>21</sup> betting on resurrection by exploiting the larger price swings of sovereign bonds issued by vulnerable countries.<sup>22</sup> Yet, this only justifies a bias towards debt issued by any GIIPs, not a home bias.

A complementary argument is a “*nothing to lose*” one. If vulnerable home sovereigns were to default, home banks would very likely go out of business, even if they held a diversified portfolio of safe bonds. As argued explicitly by Nielsen (2016) and Lanotte et al. (2016), home banks cannot hedge the risk of a home sovereign defaulting.<sup>23</sup> In the case of the default of their own sovereign, the downside for them would be the same whether they bet on resurrection, or they allocate their investment to safer assets. Using the words of Tabellini (2018), “any bank is unlikely to survive the default of its sovereign, irrespective of how much domestic debt it holds”.<sup>24</sup> Hence, if banks survive only if there is resurrection, a rational strategy would be to bet on resurrection and hold a home-biased portfolio. Of course, this is not the case for banks in non-vulnerable countries, where incentives for carry-trade are weaker, and safer assets have largely a better risk/return ratio.

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<sup>20</sup> Acharya, V., and Steffen, S. 2015. The ‘Greatest’ Carry Trade Ever? Understanding Eurozone Bank Risks. *Journal of Financial Economics*, 115, 215-236.

<sup>21</sup> Acharya, V., and Steffen, S. 2015. The ‘Greatest’ Carry Trade Ever? Understanding Eurozone Bank Risks. *Journal of Financial Economics*, 115, 215-236.; Altavilla, C., Pagano, M., and Simonelli, S. (2017). Bank Exposures and Sovereign Stress Transmission. *Review of Finance*, 21, 1-37.; Buch, C., Koetter, M., and Ohls, J. (2016). Banks and sovereign risk: A granular view. *Journal of Financial Stability*, 25, 1-15.

<sup>22</sup> Battistini, N., Pagano, M., and Simonelli, S. 2014. Systemic Risk, Sovereign Yields and Bank Exposures in the Euro Crisis. *Economic Policy*, 29, 203–51.

<sup>23</sup> Nielsen, E.F. (2016). Risk-weighting sovereign debt is the wrong way to go. *European Economy – Banks, Regulation, and the Real Sector 2016.1*, 119-128.; Lanotte, M., Manzelli, G., Rinaldi, A.M., Taboga, M., and Tommasino, P. (2016). Easier Said Than Done? Reforming the Prudential Treatment of Banks’ Sovereign Exposures. *European Economy – Banks, Regulation, and the Real Sector 2016.1*, 73-103.

<sup>24</sup> Tabellini, G. (2018). Reforming the eurozone: Structuring vs Restructuring Sovereign Debts. *Voxeu.org*, 23 November.

An alternative interpretation is the “*moral suasion*” one, according to which governments in vulnerable countries pressured domestic banks into buying domestic sovereign bonds, especially if these banks had been previously bailed out with taxpayers’ money, and turned out to be owned by public entities.<sup>25 26</sup> The Irish account by Frisell (2016) also confirms the case in point.<sup>27</sup>

Altavilla et al. (2017) show that both the “*carry-trade*” and “*moral suasion*” motives can explain the rapid rise of banks’ sovereign exposures in vulnerable countries, and that the latter is especially likely to be held into account when considering previously bailed out banks.<sup>28</sup>

Additional mechanisms at play include the fact that banks might strategically underwrite domestic sovereign debt to force governments to avoid actions that may lead to default. The ‘bailout put’ through public interventions has a higher value to banks during riskier financial times, thus inducing them to increase the home bias in sovereign holding. At the same time, Governments might use the threat of the damages caused by a sovereign default to obtain assistance or debt forgiveness, and thereby sustained access to capital markets. These strategic interactions between banks and governments might introduce a beneficial disciplining device on sovereign management, and favour public support of defaulting banks, i.e., bail-outs.<sup>29 30</sup>

What can we say of these motives? The carry-trade option was a risky bet, but it probably paid off, at least in part, giving weak banks additional profits that helped them stay afloat. And, in practice, it was not as risky as it might have first appeared, given that it was highly likely that some form of fiscal risk sharing would have been devised and that the Eurosystem would have finally acted as a buyer of last resort in the sovereign bond market to “preserve the euro”, and to guarantee a smooth transmission of monetary policy. In fact, carry-trade was funded by the ECB’s liquidity windows. Also, it took place especially after the establishment of the ESFS and the ESM moved the policy stance in the Euro area towards a higher degree of fiscal risk mutualization. Additionally, after the “whatever it takes” speech, the monetary stance was changed. In other words, carry-trade was favoured by both enhanced fiscal backstops and less constrained monetary policy within the monetary union.<sup>31</sup>

As per the moral suasion motive, it should be examined within the policy context of the time. Especially in the earlier stages of the crisis, when no mutualisation was in place, the willingness of banks to buy sovereigns partly smoothed the severity of the sovereign problem.<sup>32</sup> As recalled by

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<sup>25</sup> Acharya, V., and Steffen, S. 2015. The ‘Greatest’ Carry Trade Ever? Understanding Eurozone Bank Risks. *Journal of Financial Economics*, 115, 215-236; Ongena, S., Popov, A., and Horen, N.V. (2016). The invisible hand of the government: ‘Moral suasion’ during the European sovereign debt crisis. ECB Working Paper No. 1937.

<sup>26</sup> De Marco, F. and Macchiavelli, M. (2015). The Political Origin of Home Bias: the Case of Europe. Mimeo, show that government-owned and politically-connected banks displayed relatively stronger home bias in sovereign debt than privately owned banks between 2010 and 2013.

<sup>27</sup> Frisell, L. (2016). Europe’s regulatory treatment of banks’ sovereign exposures – How a flawed framework was put to use in the Irish financial crisis. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 105-117.

<sup>28</sup> Altavilla, C., Pagano, M., and Simonelli, S. (2017). Bank Exposures and Sovereign Stress Transmission. *Review of Finance*, 21, 1-37.

<sup>29</sup> Farhi, E., and Tirole, J. (2018). Deadly embrace: Sovereign and financial balance sheets doom loops. *Review of Financial Studies*, 85, 1781-1823.

<sup>30</sup> For another theoretical analysis of the risk-shifting incentives Cooper, R., and Nikolov, K. (2018). Government debt and banking fragility: The spreading of strategic uncertainty. *International Economic Review*, 59, 1905-1925.

<sup>31</sup> See Pagano, M. (2016). The sovereign-bank nexus and the case for European safe bonds. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 129-138.

<sup>32</sup> Of course, this was not the case for all countries: in Greece, the extent of the fiscal imbalances was such that local banks could indeed do very little to match the demand shortage of sovereign bonds.

Visco (2016), there is ample evidence that domestic banks sold sovereign bonds when markets overheated and bought them when markets were excessively bearish and foreign investors were fleeing. Banks' home bias thus helped reducing excessive volatility in financial markets.<sup>33</sup>

In Italy, for example, domestic banks had effectively been acting as buyers of last resort, supporting weak demand in auctions.<sup>34</sup> Had domestic banks not raised their investments in sovereigns, spreads might have increased even further, and probably pushed some countries towards insolvency. Hence, given that domestic frail banks would in any case be very severely affected by the bankruptcy of their sovereign, supporting it was a fully rational choice, even if it was the outcome of some degree of moral suasion.

*The fourth issue is whether we are now in equilibrium, or if broader policy actions are needed.* The two-sided "lending of last resort" between banks and sovereign can indeed smoothen unwarranted market shifts in the short term. Nevertheless, when crises are deeper, as they were between 2008 and 2012, fragile sovereign states sustaining fragile banks and fragile banks sustaining fragile sovereign states resemble a ping pong of mutual fragilities, a house of cards that can support the system only for a short time.

We have seen that what finally severed the diabolic loop in the Euro area were the crucial institutional reforms, like the Banking Union, with the ESM and the SRB, and the direct intervention of the ECB in the market for sovereign debt. These reforms are crucial and provide an institutional framework that, once fully implemented, will make the reappearing of the loop less likely.

Nevertheless, we are not completely there yet. The Banking Union is still not complete. The mechanisms for fiscal mutualisation are being strengthened along the lines of the memorandum of understanding recently signed between the ESM and the European Commission, but it is still not clear how the memorandum will be implemented. And although the ECB has shown that within its mandate it can deploy a large range of monetary policy tools to avoid excessively unstable sovereign markets, monetary policy cannot do the whole job by itself.

The necessary and urgent completion of this institutional design makes a rethinking of banking regulations on sovereign exposures an inevitable step.

#### **4. The long run equilibrium. Sovereign exposures under "normal conditions"**

The debate on reforming the regulatory framework for sovereign exposures is intense. The direction is that of restoring the spirit of the Basel agreements, with any possible reform being applied to all countries at the same time and in similar ways, so as to level the playing field.<sup>35</sup>

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<sup>33</sup> Visco, I. (2016), Banks' Sovereign Exposures and the Feedback Loop Between Banks and Their Sovereigns. Concluding Remarks presented at the Euro50 Group Conference on The Future of European Government Bonds Markets, 2 May.

<sup>34</sup> See Lanotte, M., Manzelli, G., Rinaldi, A.M., Taboga, M., and Tommasino, P. (2016). Easier Said Than Done? Reforming the Prudential Treatment of Banks' Sovereign Exposures. European Economy – Banks, Regulation, and the Real Sector 2016.1, 73-103.

<sup>35</sup> BCBS (2017a). Regulatory Consistency Assessment Programme (RCAP): Assessment of Basel III LCR regulations – European Union. Basel Committee on Banking Supervision, Basel: Bank for International Settlements, July.; BCBS (2017b). Instructions for Basel III monitoring. Basel Committee on Banking Supervision, Basel: Bank for International Settlements, July.

The issue is especially topical within the Eurozone. We have argued that, following the deterioration of fiscal conditions and of banks' balance sheets, the loop in the Euro area initially spiralled because the ECB had no option but that to support sovereigns, and because of limited manoeuvring space in mutualising fiscal costs and risks. We have also argued that, in this context, more stringent rules on banks' sovereign exposures would not have necessarily limited the perverse systemic effects of the loop, nor would they have necessarily helped the stabilisation of credit towards the private sector.

Nonetheless, the crisis has clearly reminded us that sovereigns can indeed be risky, and that even within the Euro area there is a large heterogeneity in their degree of riskiness. Therefore, we may ask if, in a more relaxed world of lower spreads and fully working institutional umbrellas, there would be scope for changing the rules on sovereign exposures, to better account for heterogenous and intrinsic riskiness.

Even when considering a regulatory reform to be implemented in normal times, there are key differences between countries that are members of a monetary union and those that are not. If the absence of a risk-sharing framework made the Euro area so special, then in the long-run, and in "normal times", the rational is reverted. It is precisely the implementation of a risk-sharing framework (if and when fully implemented) that makes the equalitarian risk-free treatment of sovereigns with different levels of inherent riskiness non-sustainable. It is it precisely the actual or potential existence of risk sharing arrangements that make the Euro area special and the call for reforms more impellent than for individual countries like Japan or the US.

Therefore, the treatment of asymmetries and the actual implementation of risk sharing mechanisms go hand in hand. Yet asymmetries make safer countries resist the implementation of the EDIS, unless the regulatory treatment of foreign exposures is reformed, and make vulnerable countries resist bank sovereign exposure reforms, unless a full risk sharing mechanism is in place.

In principle, if all heterogeneity in risk levels were removed, and the full implementation of the Fiscal Compact had managed to make all Euro sovereign risk free, there would be a fully integrated European financial market, like in the United States. Large European banks would autonomously follow an optimal diversification strategy, and would therefore not be linked to their sovereigns any longer. The rational but perverse incentive to bet on resurrection and hold a home-biased portfolio of sovereigns would not be present anymore. Risk weighting and large exposure provisions on banks' holdings of sovereign debt would be non-binding.

However, the time when all sovereigns will have similar conditions of riskiness is far in the future. Even the most optimistic projections of convergence of debt levels among Euro area member states envisage a very long time span. And full harmonization will likely never be achieved, for how effective harmonization mechanisms might be. Hence, we have to envisage a world where asymmetries are persistent, where effective incentives to reduce them are in place, and where the implementation of the Monetary and Banking Union and of Fiscal risk sharing devices keep moving ahead. Not an easy equation to solve.

Also, as the recent Italian political framework is showing, uncertainties related to the credibility of governments and their economic policies can severely affect the inherent riskiness of sovereigns, especially in countries with high debt levels. And banks exposed to such sovereigns may face considerable devaluations of their assets, especially those which must be marked-to-market. Hence,

it is difficult to reason in terms of “normal times”, because for highly indebted countries times are never completely normal and market reversals are always on the outlook.

In what follows, we discuss a few proposals that have emerged recently, bearing in mind that these are long term solutions that would require a transition phase in any case.

The March 2015 Report of the European Systemic Risk Board expert group on regulatory treatment of sovereign exposures suggests several possible measures that should be envisaged within a long-term horizon, when banks will have fully repaired their balance sheets and gradually reduced their sovereign exposures.

In broad terms, three main families of regulatory measures were put forward. The first one assigns a non-zero risk weight to sovereign bonds, reflecting the effective risk of such exposures. The second implies partially or fully lifting the exception to the large exposure provision, which imposes extra capital surcharges on exposures larger than 25% of a bank’s total assets. The third one restricts the use of sovereigns to comply with liquidity requirements, for example in the computation of the Liquidity Coverage Ratio (LCR) or the Net Stable Funding Ratio (NSFR). Essentially, these reforms imply re-establishing the spirit of the Basel II framework, then revised in the Basel III, lifting the carve-out treatment.<sup>36</sup>

The papers by Frisell (2016) and Nielsen (2016) provide a detailed discussion of these three families of measures. For example, they both suggest that risk weighting is not an effective measure to deal with this issue. Nielsen (2016) also argues that risk weights raise a philosophical issue of potential loss of sovereignty. Sovereigns might indeed be – and in fact they are – very reluctant, to institutionalize the assessment of their riskiness through a mechanical implementation of risk weighting. Instead, both Nielsen (2016) and Frisell (2016) argue that caps on large exposures would be less distortionary and encourage effective diversification. Overall, these papers show that focussing just on one measure or single sets of measures might introduce unexpected distortions and side effects.<sup>37</sup>

Recent contributions have put forward three alternative strategies to combine these different measures: Andritzky et al. (2016), which reflects the position of the German Council of Economic Advisors;<sup>38</sup> a set of papers by Brunnermeier et al. (2011) and (2016), Corsetti et al. (2016), and Pagano (2016); and a recent paper by Bénassy-Quéré et al. (2018).<sup>39</sup>

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<sup>36</sup> For a thorough analysis of the pros and cons of the current proposals see also Visco, I. (2016), Banks’ Sovereign Exposures and the Feedback Loop Between Banks and Their Sovereigns. Concluding Remarks presented at the Euro50 Group Conference on The Future of European Government Bonds Markets, 2 May.

<sup>37</sup> Frisell, L. (2016). Europe’s regulatory treatment of banks’ sovereign exposures – How a flawed framework was put to use in the Irish financial crisis. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 105-117; Nielsen, E.F. (2016). Risk-weighting sovereign debt is the wrong way to go. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 119-128.

<sup>38</sup> Andritzky, J., Gadatsch, N., Körner, T., Schäfer, A., Schnabel, I. (2016). A proposal for ending the privileges for sovereign exposures in banking regulation, [voxeu.org](http://voxeu.org) 04 March.

<sup>39</sup> Bénassy-Quéré, A., M. Brunnermeier, H. Enderlein, E. Farhi, M. Fratzscher, C. Fuest, P.O. Gourinchas, P. Martin, J. Pisani-Ferry, H. Rey, I. Schnabel, N. Véron, B. Weder di Mauro and J. Zettelmeyer (2018). Reconciling risk sharing with market discipline: A constructive approach to euro area reform. CEPR Policy Insight No. 91, Centre for Economic Policy Research, London.; Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2011). European Safe Bonds (ESBies). The Euronomics Group; Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2016). The Sovereign-Bank Diabolic Loop and ESBies. *American Economic Review Papers and Proceedings*, 106, May 2016; Corsetti G., Feld, L., Koijen, R., Reichlin, L., Reis, R., Rey, H., and Weder di Mauro, B. (2016). Reinforcing the Eurozone



The proposal by Andritzky et al. (2016) is based on a principle of “horizontal discrimination” between sovereign bonds, whereby risk weighting, large exposure provisions or other regulatory measures should reflect the effective riskiness of member states, as measured by different rating mechanisms.<sup>40</sup>

The “horizontal discrimination” implicitly provides strong incentives for reducing sovereign exposures of banks in peripheral countries (though the proposal does indeed envisage a long transition period). Nevertheless, it raises a series of issues which are not of simple solution even in normal times, and even if the issue of how to measure the effective relative riskiness of countries were resolved (rating agencies or else). The first problem is that it does not take into account the systemic dimension of the European Union. As far as there are large externalities within the Euro area, and asymmetries are to an extent persistent, risk-free sovereigns remain exposed to shocks from risky sovereigns. Vulnerable countries need financing. Lifting the risk-free status might make funding these sovereign problematic and very expensive, as banks’ portfolios would shift towards risk-free countries. This move would likely signal an increase in their vulnerability, amplify their distress and might impair the whole Union.

Second, even in the long-run, sovereign bonds issued by risk-free countries may not be enough to fulfil the requirements of the Euro area banking system. Banks need risk-free assets for plenty of reasons: to use them as collateral in repo transactions or transactions with the central bank, to fulfil liquidity requirements, and as an asset class they can revert to in moments of distress. Indeed, according to this proposal, at the moment, only Germany, Luxembourg and the Netherlands would issue such assets in the Euro area.<sup>41</sup>

Of course, this does not imply that maintaining an artificial risk free status for all sovereigns would solve the problem. It only means that a mechanism that de facto “tranches” risks based on “horizontal discrimination” is likely to be unable to provide a sufficient amount of risk-free assets to the banking system.

An alternative mechanism is instead based on a combination of “horizontal” and “vertical” discrimination.<sup>42</sup> The idea is to introduce different regulatory treatments based on the riskiness of the sovereigns – in line with the proposal of the German Council of Economic Experts – but, at the same time, to create a risk free asset through pooling and tranching portfolios of sovereign bonds (“vertical discrimination”).

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and Protecting an Open Society, Monitoring the Eurozone 2, CEPR Press; Corsetti G., Feld , L., Kojien, R., Reichlin, L., Reis, R., Rey, H., and Weder di Mauro, B. (2016). Reinforcing the Eurozone and Protecting an Open Society, Monitoring the Eurozone 2, CEPR Press; Pagano, M. (2016). The sovereign-bank nexus and the case for European safe bonds. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 129-138.

<sup>40</sup> Andritzky, J., Gadatsch, N., Körner, T., Schäfer, A., Schnabel, I. (2016). A proposal for ending the privileges for sovereign exposures in banking regulation, *voxeu.org* 04 March.

<sup>41</sup> Altavilla, C., Pagano, M., and Simonelli, S. (2017). *Bank Exposures and Sovereign Stress Transmission*. *Review of Finance*, 21, 1-37.

<sup>42</sup> Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2011). *European Safe Bonds (ESBies)*. The Euronomics Group; Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2016). *The Sovereign-Bank Diabolic Loop and ESBies*. *American Economic Review Papers and Proceedings*, 106, May 2016; Corsetti G., Feld, L., Kojien, R., Reichlin, L., Reis, R., Rey, H., and Weder di Mauro, B. (2016). Reinforcing the Eurozone and Protecting an Open Society, Monitoring the Eurozone 2, CEPR Press; Pagano, M. (2016). The sovereign-bank nexus and the case for European safe bonds. *European Economy – Banks, Regulation, and the Real Sector* 2016.1, 129-138.

The process to create European Safe Bonds (ESBies) would be split into two steps. First, a private and market based financial entity would acquire a portfolio of bonds issued by all member countries of the Euro area, with the share of securities from each country defined on the basis of an objective parameter, such as their contribution to aggregate nominal GDP. Second, this entity would issue a set of securities, backed by the portfolio of sovereign bonds, using a tranching technique. The most subordinate tranche would suffer all losses on the value of sovereign securities held by the financial entity, up to its nominal value. Only if and when the value of the most subordinate tranche had fully absorbed losses, the owners of the next tranche would incur losses on their securities. Even with just two tranches, the most senior would have a larger size and similar or better risk characteristics than risk-free sovereign bonds.

Three aspects of this proposal are particularly appealing. First, it involves a mechanism of risk sharing, because it creates a portfolio of sovereigns issued by all Euro area member countries. Second, it introduces a “vertical” risk discrimination among different tranches of the same diversified portfolio. This second characteristic is crucial, because it generates a large pool of low-risk assets, which are necessary to fulfil the needs of banks.<sup>43</sup> Third, it reduces the risk of severe shortages in the demand of bonds in vulnerable countries, as might instead emerge under a pure horizontal mechanism.

It may appear at first sight that the risk-sharing mechanism implicit in the ESBies and other similar proposals would create moral hazard to countries with high public debt, allowing them to issue cheap government bonds. But this is not true. Sovereigns would first be issued at market prices, and only subsequently, would be bought by the financial entity described above. Moreover, a large enough share of the total amount of debt issued by each member State would be left for trading. In this way, the price of sovereign bonds would always reflect their degree of riskiness as perceived by market investors. The cost of unsustainable fiscal policies would therefore be priced in bonds issued by non-virtuous governments, even though, as argued, dramatic shortages in demand would be less likely to emerge than under pure “horizontal” discrimination.<sup>44</sup>

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<sup>43</sup> Indeed, the same result would not be attained without tranching: using the level of risk of national sovereigns at the end of 2015, for example, Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2016). The Sovereign-Bank Diabolic Loop and ESBies. *American Economic Review Papers and Proceedings*, 106, May 2016, calculate that a portfolio obtained by simply pooling sovereigns issued by Euro area countries according to their contribution to aggregate GDP would have an expected loss rate of 2.90%, nearly 6 times the expected loss rate of what is considered a safe asset (0.50%) and of German sovereign bonds (0.45%). Instead, if this risk were redistributed through tranching, even with just one junior tranche representing 30% of the pooled portfolio, this would have an expected loss of 9.30% (comparable to that of Portugal), the expected loss rate of the senior tranche representing the remaining 70% would be a mere 0.15%, one third of that of Germany.

<sup>44</sup> Precise computations should be made, but in fact, the cost of financing vulnerable sovereigns might be even higher than if only “horizontal” discrimination were present (besides for extreme conditions). Consider a case in which there is a structural undersupply of safe assets, as in the case of the proposal of the German Council of Economic Experts. In these conditions, some investors would be forced to buy a larger share of sovereigns issued by vulnerable countries than they would prefer, simply because safe assets are not available. For these countries, the marginal cost of financing its debt would therefore be lower than if risk free assets were in large supply. Assume now that an ESBies is issued in this market. With a much larger supply of risk free assets, investors will be unwilling to purchase sovereigns of vulnerable countries at the margin. Neither the demand by the financial entity in charge of creating the ESBies could compensate for this, because the composition of its portfolio is constrained by the chosen objective parameter, for example the contribution to aggregate nominal GDP. In the end, the marginal cost of financing the debt of a vulnerable country would therefore be higher than if risk free assets were in short supply.

Moreover, banks' rational but perverse incentive to hold a home-biased portfolio for the reason discussed above would be eliminated, because different regulatory treatments based on the riskiness of the sovereigns would be imposed.

A possible drawback of the ESBies proposal is the allocation of the junior tranche. As has become clear after the recent financial crisis, pooling and tranching does not eliminate risks, it only relocates them. Therefore, the question is if there is enough demand for about 1.2 trillions of euros of assets with an estimated default probability of 9.30%. Moreover, if such a large amount of risky assets ended up concentrated in the hands of a small set of investors, huge contagion effects might emerge in case of default, especially if these investors were in the lightly regulated shadow-banking sector. Some degree of control on the holdings of the junior tranche, and a fiscal backstop in case of extreme events, should probably be considered anyway.

In our view, under "normal" long run conditions a combination of "horizontal" and "vertical" risk discrimination along the lines of the proposals by Brunnermeier et al. (2011 and 2016) and Corsetti et al. (2015) is preferable to the simple "horizontal" discrimination advocated by the German Council of Economic Experts.<sup>45</sup> In fact, while both proposals guarantee identical results with respect to the ability to break the bank-sovereign loop and to create correct incentives for fiscal discipline, the former also solves the problems of an insufficient supply of risk-free assets and of an insufficient demand of government bonds in vulnerable countries. Both issues are rightly of great concerns to bankers and policy makers, especially in vulnerable countries.

A third proposal was put forward at the beginning of 2018 by a group of seven French and seven German economists, who signed a common proposal in a paper known as the 7+7 report's.<sup>46</sup> The paper addresses the issue of risk-sharing vs. market discipline in general terms, starting from the bank leg of the doom loop. The paper argues that, to favour the completion of the banking union and the capital markets union, a common deposit insurance scheme should be introduced, and at the same time sovereign concentration charges and tighter treatment of NPLs should be imposed on banks.

Considering the present institutional stalemate, the 7+7 proposal on EDIS is pretty bold. It envisages the setting-up of a common scheme under a unique institutional umbrella. Yet the scheme would preserve national compartments that would initially cover national losses. Common resources would possibly be in a separate fund and tapped on only once the national compartment is exhausted, or following a systemic or cross-border event. The fact that countries keep skin in the game, combined with differentiated insurance premia based on country risk, aim at reducing moral hazard.<sup>47</sup> The proposal also envisages a common fiscal backstop, possibly the ESM. A crucial aspect of the proposal

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<sup>45</sup> Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2011). European Safe Bonds (ESBies). The Euronomics Group; Brunnermeier, M. K., Garicano, L., Lane, P., Pagano, M., Reis, R., Santos, T., Thesmar, D., Van Nieuwerburgh, S., and Vayanos, D. (2016). The Sovereign-Bank Diabolic Loop and ESBies. American Economic Review Papers and Proceedings, 106, May 2016; Corsetti G., Feld, L., Kojien, R., Reichlin, L., Reis, R., Rey, H., and Weder di Mauro, B. (2016). Reinforcing the Eurozone and Protecting an Open Society, Monitoring the Eurozone 2, CEPR Press.

<sup>46</sup> Bénassy-Quéré, A., M. Brunnermeier, H. Enderlein, E. Farhi, M. Fratzscher, C. Fuest, P.O. Gourinchas, P. Martin, J. Pisani-Ferry, H. Rey, I. Schnabel, N. Véron, B. Weder di Mauro and J. Zettelmeyer (2018). Reconciling risk sharing with market discipline: A constructive approach to euro area reform. CEPR Policy Insight No. 91, Centre for Economic Policy Research, London.

<sup>47</sup> Schoenmaker, D. (2018). Building a stable European Deposit Insurance Scheme. Voxeu CEPR Policy Portal. Centre for Economic Policy Research, London, discusses the moral hazard issue concerning the design of EDIS.

is that all funding should be recouped from the industry. Moreover, new EU legislation should be passed that eliminates ring-fencing of capital and liquidity at the national level.

The treatment of sovereign concentration is especially relevant to our discussion. According to the 7+7 proposal, whenever the balance sheet of a bank reaches a high concentration in the debt of a single sovereign issuer, the bank should be required to increase its capital, as part of a mandatory Pillar 1 requirement.<sup>48</sup> Although the proposal emphasizes that “the sovereign concentration charges for banks should be phased in gradually, announced at a time when the debts of all euro area countries that depend on market access are widely expected to be sustainable, as is currently the case if fiscal policies stay on track; and combined with other reforms that reduce sovereign risk”, its possible destabilizing effects should be carefully assessed.<sup>49</sup> Along the same lines, a proposal for a Sovereign Concentration Charges Regulation (SCCR), jointly with EDIS, was put forward for discussion at the European Parliament by Veron (2017), one of the authors of the 7+7 paper.<sup>50</sup>

Another proposal in the 7+7 paper addresses the sovereign leg of the doom loop. The suggestion is to set up a new common fiscal fund to address large economic disturbances, defined as those above a given threshold, for example in terms of the unemployment rate, leaving the management of smaller shocks at the national level. The fund should be financed by each country in proportion to the likelihood that it might draw from it, possibly measured by a simple expenditure rule guided by a long-term debt reduction target.

Finally, along the line of the ESBies proposal, the 7+7 paper also supports the introduction of a Euro area safe asset. However, though with some different features, even this proposal generates a series of concerns related for example to the liquidity of the junior tranche.

Most of the proposals discussed have emerged in academic circles or at the European Systemic Risk Board.<sup>51</sup> The institutional debate at the European Union level is not very encouraging. On EDIS the stalemate of risk mutualisation vs. risk reduction is still freezing any further step. The European Commission (2017a), in its position paper on the deepening of the economic and monetary union, favours an agreement to implement EDIS by the end of 2019, but it does not propose changes on the treatment of sovereign exposures until 2020. Also, in the European Commission’s proposal released in November 2017 to update the capital requirement directive and regulation (CRD2 and CRR2), no significant modifications were included on the treatment of sovereign debt risk.<sup>52</sup> In contrast, a recent

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<sup>48</sup> Bini Smaghi, L. (2018). A stronger euro area through stronger institutions. VoxEU CEPR Policy Portal, criticizes this aspect, arguing that it would be preferable to assign the responsibility of assessing excessive concentration to the Single Supervisory Mechanism instead (SSM), according to Pillar 2.

<sup>49</sup> See Messori, M., and Micossi, S. (2018). Counterproductive proposals on euro area reform by French and German economists. CEPS Policy Insight No. 2018/04. Center for European Policy Studies, Brussels, for a critical assessment of the proposal.

<sup>50</sup> Véron, N. (2017). Sovereign concentration charges: A new regime for banks’ sovereign exposures. Directorate for Internal Policies. European Parliament.

<sup>51</sup> European Banking Association (2015). ESRB report on the regulatory treatment of sovereign exposures.

<sup>52</sup> In particular, while the proposed changes to article 493 of the Capital requirement directive (item 120 of the Commission’s CRR2 proposal of November 2016) aims at reducing EU banks’ future sovereign debt exposures, the modification is only transitional and does not cover the permanent exemption guaranteed by article 400.

See Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC Text with EEA relevance.

Directive 2009/111/EC (CRD2) of the European Parliament and of the Council of 16 September 2009 amending Directives 2006/48/EC, 2006/49/EC and 2007/64/EC as regards banks affiliated to central institutions, certain own funds items, large exposures, supervisory arrangements, and crisis management.

document by the Council of the European Union (EU Council, 2018) takes a more restrictive view, arguing that any liquidity support initially provided by EDIS should be reimbursed by national deposits guarantee schemes, and any potential losses stemming from pay-outs would have to be borne at the national level.<sup>53</sup>

The seminal Five President Report of 2015 (EPSC, 2015) also makes two major points concerning the doom loop: (i) that the zero risk weight and large exposures allowances on sovereign debt within the European Union require reconsidering; (ii) that it is necessary to review the treatment of large exposures to sovereign debt in the medium term. But concrete proposals are still lacking.<sup>54</sup>

## 5. Summing up, transition, and notes of caution

Reaching an agreement on EDIS would be a significant step forward to unlock the bank-sovereign diabolic circle. Failing to do so might ignite renewed pessimism about the future of the banking union and the Eurozone itself.<sup>55</sup> While lately the prospects of relatively stronger economic growth reduced the likelihood that any Eurozone country faced a sovereign debt crisis, the end of QE and increased political uncertainty makes the foreseeable scenario less optimistic.<sup>56</sup>

More in general, as argued by Bini Smaghi (2018), “there should in any case be no illusion that rules are sufficient to eliminate the doom loop. Even if banks had limited holdings of government bonds, they would nevertheless suffer disproportionately from a shock affecting their country”. Creating a fully integrated financial market in the Euro area seems the only viable alternative, but achieving the level of integration necessary to fully eradicate the doom loop will require a long stretch of time. Unfortunately, such a luxury may not be in the cards. Policy makers and bankers therefore must start by addressing the legacy problems during the transition period towards full integration.<sup>57</sup>

Tabellini (2018) has a subtle discussion of the problems that 7+7 proposals would face in their short-run implementation. He argues that removing shock absorbers such as banks purchases of weak sovereigns would make the system even more fragile.<sup>58</sup> Visco’s concern (2016) of losing the role of banks when smoothing excessive variability in financial markets is especially relevant, in particular when asymmetries in the European monetary union are sizeable. Banks’ balance sheets still contain relatively high levels of risk in form of sovereign debt and non-performing loans (NPLs), although the recent issuance of NPLs and enhanced economic conditions begin improving access to finance.

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Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 Text with EEA relevance.

<sup>53</sup> European Commission (2017), “Reflection Paper on the Deepening of the Economic and Monetary Union”, Brussels, May 31.

<sup>54</sup> European Political Strategy Centre. (2015). Further Risk Reduction in the Banking Union. Five Presidents’ Report Series, Issue 3.

<sup>55</sup> See European Commission (2017), “Communication on completing the Banking Union”, Brussels, October 11; and Véron, N. (2017). Sovereign concentration charges: A new regime for banks’ sovereign exposures. Directorate for Internal Policies. European Parliament.

<sup>56</sup> Blanchard, O., and Zettelmeyer, J. (2017). Will Rising Interest Rates Lead to Fiscal Crises? PIIE Policy Brief 17-27. Washington: Peterson Institute for International Economics.

<sup>57</sup> Bini Smaghi, L. (2018). A stronger euro area through stronger institutions. VoxEU CEPR Policy Portal.

<sup>58</sup> Tabellini, G. (2018). Reforming the eurozone: Structuring vs Restructuring Sovereign Debts. Voxeu.org, 23 November.

Since markets tend to frontload regulatory changes, even a slow path to a fully “horizontal” risk discrimination could cause huge problems to banks and sovereigns.<sup>59</sup>

The magnitude of these effects will be large, specifically for vulnerable countries. The effects of removing the zero weights on sovereign bonds in relatively vulnerable countries could become disruptive in case of worsening fiscal conditions. Furthermore, limits on large exposures might imply a considerable reduction in assets, or adjustments in the portfolio towards other countries than those vulnerable. Indeed, if it is not easy to find a consensus on the optimal long-run solution for the doom loop, shorter-run challenges appear even stronger.

The lack of risk-sharing mechanisms at the beginning of the financial crisis has been responsible for the acceleration of the bank-sovereign doom loop in the Eurozone. This problem can only be addressed by combining enhanced risk-sharing and a tighter regulatory frameworks to reduce risk asymmetries among sovereigns. We believe that the banking union, with an EDIS and the ESM acting as a fiscal backstop, should be completed swiftly. But this will work only if problems are tackled at their very root. While the cleaning of banks’ balance sheets is proceeding, what is still lacking is a credible commitment to debt reduction in highly indebted countries, possibly with the help of institutional constraints on national fiscal policies, which have proved more effective than it is commonly recognized in disciplining fiscal policies. The political feasibility of any alternative strategy – such as that advocated by Feld (2018) of addressing the legacy problems head on, even accepting some degrees of mutualisation, with the aim of reducing the risks ahead – seems rather questionable (Pisani-Ferry, 2018).<sup>60</sup> Indeed, if a broad theme can be found by looking at the debate on the doom loop, it is that, aside from reducing the link between banks and sovereign crisis, a final solution can be found only by reducing excessive debt.

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<sup>59</sup> Visco, I. (2016), Banks’ Sovereign Exposures and the Feedback Loop Between Banks and Their Sovereigns. Concluding Remarks presented at the Euro50 Group Conference on The Future of European Government Bonds Markets, 2 May.

<sup>60</sup> Feld, L. (2018). Whither a fiscal capacity in EMU. VoxEU CEPR Policy Portal; Pisani-Ferry, J. (2018). Euro area reform. An anatomy of the debate. CEPR Policy Insight No. 95, Centre for Economic Policy Research, London.