Benoît Cœuré: Sovereign debt in the euro area - too safe or too risky?

Keynote address by Mr Benoît Cœuré, Member of the Executive Board of the European Central Bank, at Harvard University's Minda de Gunzburg Center for European Studies, Cambridge, Massachusetts, 3 November 2016.

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Debt is integral to the functioning of a market economy. The vast majority of money we use for transactions today is the debt of banks, bank deposits. Cash itself, that is, coins and notes circulating in the economy, is a debt of the central bank which used to be redeemable against gold or against the Treasury. And the counterpart of debt – credit – facilitates the productive investment through which market economies grow over time, in turn increasing transactions and demand for money.

Seen another way, debt and credit help avoid what economists have called "double coincidence of wants" along two dimensions: by allowing buyers and sellers to transact at *any point in time*, and by allowing future earnings to be brought forward for current transactions – so *across time*.[1] None of the accomplishments of market economies are imaginable without debt-as-money and its credit counterpart.

But if this is the most common understanding today, it is far from being the only one. In many cultures and languages, the notions of money, debt and credit have a much broader – and more normative – meaning. As Keith Hart famously noted, there are two sides to a coin. Heads is money as a unit of account, means of payment and store of value: the Aristotelian functions of money, taught in undergraduate economics. But tails is money as a token of trust in society and its political institutions.[2]

As for debt, as is well-known, in most Indo-European languages there is a close connection between "debt" and "guilt".[3] But perhaps more importantly, there is an affinity between "credit" and "trust", since all monetary systems, going back to the earliest times, have ultimately been built on trust.[4] And I find this relevant because "trust" is at the heart of the crisis we have experienced in the euro area in recent years.

Indeed, more than any other advanced economy, the euro area has experienced how quickly trust in the sustainability of public debt can form and then transform, and with it perceptions of "creditworthiness". In our case, it has shifted from one pole to the other. Public debt has been seen as both *too safe* and *too risky*.

Too safe, because the widespread belief before the crisis that the debt of different euro area sovereigns was interchangeable fuelled an unwarranted spread compression and contributed to major financial and macroeconomic imbalances.

And *too risky*, because the rapid unwinding of those beliefs cascaded through the financial system and government finances, pushing the euro area into a deeper and more prolonged crisis than other advanced economies.

Accordingly, there is a rift in Europe between those economists and politicians who want public debt to be safe again, and those who want it to be riskier. But looking forward, neither extreme is sustainable.

This is because we need public debt to be safe in the euro area. It is vital to the functioning of the financial system, analogous to the function of money in the real economy. And it allows governments to play their proper role in stabilising the economy, which is essential in the

institutional design of our monetary union. So if sovereign debt is *too risky*, it will place the full burden on other actors to provide safe assets for the financial sector and safe liabilities for governments.

And because unsustainable fiscal policy can ultimately create pressure on the central bank to monetise debt, what is known by economists as "fiscal dominance", even in a fiat money system impaired creditworthiness of governments ultimately creates the risk of an eroding trust in the ultimate safe asset: central bank money.

Yet at the same time, we also do not want public debt to be perceived as *too safe*, since that would eliminate the role of market discipline in delivering sustainable policies and create a false belief that governments cannot fail.[5] However strong our fiscal rules, our political systems cannot credibly deliver the promise that governments will never default on their debt – unless the central bank would commit to bailing them out no matter what, which the euro area by-laws have formally excluded[6].

What I would like to discuss today is how we might go about squaring the circle between risk and safety.

Risk and safety in the euro area

What is the fundamental difference between “safe” and “risky” assets? It is ultimately about how they behave in financial crises. The prices of safe assets correlate *negatively* with risk aversion: in financial crises, demand for them soars, driving up their prices and pushing down their yields. This is because they contain no uncertainty about future payments, which means that holders of safe assets have no reason to pass judgement about their probability of default in difficult times.

Admittedly, the definition is partly self-referential. In the end, assets are just as safe as they are expected to be and as a consequence they are prone to abrupt shifts in confidence. Yet perceptions of safety can be established by *making* assets intrinsically safe (or safer), by *guaranteeing* their safety through government or central bank action, or *labelling* them safe to confirm their safety (e.g. using credit ratings or regulatory labelling – a less convincing option, as the failure of credit ratings has shown in the Great Financial Crisis).[7] Safety is, in other words, an outcome of an institutional and legal framework.[8]

In most advanced economies, the institutional framework has been designed to ensure that certain types of assets are *always* perceived as safe given their importance to the functioning of the economy.

The most important is the ultimate safe asset, *base money* (or cash), where safety is guaranteed by two factors: trust in the central bank that protects its value and trust in the rule of law – the security of contract, the fairness of the judicial process, and so on. These institutions help us understand why, even as trust in some euro area sovereigns waned during the crisis, trust in the euro as a currency remained high across the Union and beyond.[9] There was never any question that the central bank would sacrifice price stability or that the rule of law would be compromised.

The same logic applies to *private bank money*. States have ensured the safety of bank money by guaranteeing the share most relevant for transactions, i.e. deposit insurance, and in exchange they hold banks to a “social contract” through a high degree of supervision and regulation.[10] What we have learned in the euro area, however, is that this contract depends on a uniform institutional framework across the area of jurisdiction, otherwise bank money is liable to fragment. The response in 2012 was Banking Union, which re-establishes the contract at the level of the Union.[11]

And in most advanced economies, as well as in most macroeconomic models, *government debt* is always perceived to be safe, too. There is (effectively) full consolidation between the balance sheet of the central bank and that of the fiscal authority, making government debt risk-free in nominal terms. The central bank can guarantee its payment in cash and at par in all states of the world. As such, there is no credit risk attached to sovereign bonds, although they may still carry inflation risk if the central bank is pressured by the government into financing inflationary deficits.

In the euro area, however, the same institutional relationships cannot apply. There is one central bank and nineteen different fiscal authorities, the member countries do not assume responsibilities for each other's debt, and the European Central Bank (ECB), for very good reasons, is forbidden by the Treaty from "monetary financing" – which means purchasing directly the debt of governments or directly lending to them.

This ensures that fiscal transfers do not take place through the central bank that have not been authorised by euro area citizens, and it avoids fiscal dominance over monetary policy, which would jeopardise the pursuit of price stability. Yet it also means that euro area government bonds are equivalent, in some ways, to "sub-sovereign" issues, since the different fiscal authorities and the central bank cannot be consolidated within a single "federal" balance sheet.

German and Greek government bonds are not guaranteed by any European authority, just as bonds issued by California or Arkansas are not guaranteed by the federal government or by the Federal Reserve. And while the establishment of a permanent crisis resolution mechanism, the European Stability Mechanism (ESM), has created a backstop for national budgets, it is limited in size, conditional on adjustment programmes, and is an inter-governmental, not a federal, instrument. Sovereign debt in the euro area is thus exposed to credit risk in a way other advanced economies are not.

And this is indeed by design. The construction of the euro area – the monetary financing prohibition enshrined in the EU Treaty, the "no bailout clause"[12] – is deliberately intended to encourage markets to differentiate between euro area sovereigns based on their fiscal sustainability. The idea is that the exercise of market discipline will provide a continuous assessment of government actions, which will in turn lead to sounder policies.

This is necessary because, in a monetary union, unsound national fiscal policies have major spillovers to other countries and to the single monetary policy. And insuring against that risk *across countries* would entail a degree of sovereignty-sharing which the European people are not willing to concede. Decision-making on fiscal policies in the euro area is therefore decentralised among sovereign states, guided only by a set of fiscal rules – the Stability and Growth Pact – which the centre – the European Commission, the Council of Ministers – has limited power to enforce.

So just as for the states in the US with their balanced budget rules, the possibility that creditors might take losses is crucial to add credibility to the fiscal framework. Or put another way, it is important that debt is not "too safe" in the euro area – meaning that losses are excluded – otherwise the full burden for ensuring fiscal sustainability would end up on the fiscal rules, a promise which experience has shown not to be credible, or on the expectation that the central bank will eventually bail out governments, which the Treaty has explicitly ruled out.

The fact that euro area sovereign bonds are exposed to credit risk in this way does not mean, in principle, that they cannot also serve as safe assets. The difference is that they have to be *made* safe through sound fiscal policies, rather than *assumed* to be safe. And it is indeed clear from the structure of euro area government bond yields that credit risk *is* partly responsive to the outcome of fiscal policies.

Yet what we have seen in the euro area is that, *ex post*, sound fiscal policies alone are not

sufficient to make sovereign bonds safe. This is because the application of market discipline, when it comes, is often imperfect. Credit risk premia tend not to increase in a continuous way that leads endogenously to better fiscal and economic policies, but are instead non-linear.[13] Credit risk is under-priced in good times when risk aversion is low, and then rapidly re-priced in bad times when risk aversion spikes. The result is excessive price volatility.

And in situations where such non-linearities arise, it may also lead to self-fulfilling dynamics – what economists call "multiple equilibria". When sovereign bond yields rise and prices fall, demand for bonds should normally rise. But if yields rise steeply to a point that calls into question solvency, demand actually *falls*, producing a vicious circle. And if there is any correlation between credit risk perceptions *across*government borrowers, this process in one country can create contagion to others.

Indeed, while eight euro area governments entered the crisis with AAA-rated sovereign issues, today only three have that status.[14] Market discipline has destroyed safe assets more than it has created them.

One response to this, which is now being fiercely discussed in the euro area, is to apply regulatory constraints and/or risk weights to sovereign bonds, thus encouraging systemic sectors – banks, pension funds, insurers – to appropriately consider their risk of default. This would in principle make market discipline more linear and effective *ex ante*. And coupled with proposals for mechanisms for orderly sovereign default[15], it might also help attenuate the severity of crises.

Yet it would also be a partial equilibrium solution, since it would reduce the ability of domestic banks to act *ex post* as a contingency liquidity buffer to their sovereigns, and that may leave bond markets even more at risk of multiple equilibria. In the absence of an alternative fiscal backing, sovereign yields might in other words increase *more*in times of financial stress. All in all, however desirable it may be from a prudential perspective, it seems odd to discuss this proposal without considering its fiscal consequences.

Taken in isolation, such proposals are therefore unlikely to resolve the tension between market discipline and safe assets in the euro area. And this matters, for two reasons.

First, because sovereign debt provides a safe *asset* for the financial system, which is increasingly dependent on a sufficient supply of such assets. And if sovereigns are not supplying safe assets, then someone else has to.

Second, because sovereign debt provides a safe *liability* for the government through which it can stabilise the economy. And if governments are unable to perform this role in the euro area, there is insufficient stabilisation at the national level, and by implication also for the euro area as a whole.

Sovereign debt as a safe asset

Sovereign debt is highly prized in the financial system for its function as a safe asset, and safe assets in turn perform two vital roles in the system, which make them a close substitute of money.

First, they provide a low-risk and liquid *store of value*, which is key for long-term investors, such as pension and insurance funds, and more generally for meeting regulatory liquidity and solvency requirements. And demand for both functions has increased significantly due to recent regulatory changes in the EU which translate the global financial regulatory overhaul.

Changes to capital requirements for insurers and pension funds, for example, have been specifically designed to encourage them to match the duration of their assets and liabilities,

raising demand for long-dated sovereign issues. The new Liquidity Coverage Ratio induces banks to increase holdings of high quality liquid assets, of which government bonds are major part. And the shift of a large number of OTC derivatives transactions to central counterparties (CCPs) elevates demand for safe assets for use in initial margin and guarantee funds.

Second, safe assets act as a *means of exchange*, especially for the non-bank financial system which cannot settle claims with central bank money.[16] Market-based finance is, by and large, organised around collateralised lending, which creates high demand for safe and therefore low-price-volatility (or information insensitive) collateral. In this context safe sovereign bonds play a special role. And such "transaction demand" for safe assets is also structurally increasing as financial intermediation shifts from the bank to the non-bank sector.[17]

For these reasons, if the net supply of safe sovereign bonds suddenly contracts, as we saw in the euro area, it is extremely disruptive for the financial system – analogous to expansions and contractions in the supply of cash. And such disruptions are obviously something that public policymakers have to be sensitive to.

The ECB, like other central banks, has therefore responded to the reduction in safe assets during the crisis – both euro area sovereigns and AAA-rated asset-backed securities – by swapping central bank money for assets with duration and credit risk. Since central bank reserves are perceived as the ultimate safe assets, this has increased the relative supply of risk-free assets in private portfolios.

Central banks' role here is justified, for the time being, since if safe assets are becoming increasingly important as both stores of values and media of exchange, then one could argue that they increasingly have "moneyness". And stabilising money is what central banks are for – insofar, in the ECB's case, as we do not breach the prohibition of monetary financing.

Yet such policies are clearly not fully satisfying safe asset demand. In the euro area demand for sovereign bonds provided by highly rated issuers has remained high, visible for instance in the high cost of borrowing through repurchase agreements against German Bunds. Borrowing against bonds issued by lower rated sovereign issuers has by contrast cheapened, reflecting a higher pricing of safety. So the question is: who should take responsibility in the medium-term for increasing the supply of safe assets to meet this demand?

First and foremost, euro area governments should make their outstanding stock of debt safer by running fiscal policies which are more responsible and friendlier to growth, so that the public-debt-to-GDP ratio is seen to be on a declining path. Another possible solution is for market participants to find ways to generate more safe assets out of the existing debt stock by diversifying the idiosyncratic risks in sovereign issues, for instance through so-called European Safe Bonds.[18]

Yet if governments do not provide more safe assets or markets do not construct them synthetically, a second-best answer, as I have discussed elsewhere[19], is for central banks to operate with permanently higher balance sheets to compensate for structural changes in the supply of and demand for safe assets – and potentially to adjust their counterparty frameworks and capital structures so as also to service the non-bank sector more directly.

The Fed, for example, now allows money market funds access to its balance sheet through its Reverse Repo Operations, while the Bank of England grants access to CCPs. It is also conceivable, as Jeremy Stein and his co-authors have suggested, for central banks to issue bills to satisfy safe asset demand in the non-bank system.[20] And central banks can meet demand for special collateral by re-lending their bond portfolios, which the ECB is already doing, although this could be scaled up.

In other words, it is well within central banks' operational capacity to play a more structural role in supplying safe assets to the financial system. That would however suppress a crucial incentive for governments to improve the safety of their debt.

Sovereign debt as a safe liability

While synthetic bonds or central bank operations might be able to help meet demand for safe *assets*, they cannot replicate the other vital function of sovereign bonds: to provide safe *liabilities* for the government. Neither option helps shield governments from the types of distortions in sovereign bond markets that I described above which can constrain their ability to access financial markets.

And this matters because governments must have recourse to their own safe liabilities to be able to issue debt and stabilise their economies through downswings in the cycle. If instead sovereign debt becomes *positively* correlated with risk aversion, their marginal cost of borrowing will increase precisely when they most need to issue. That constrains the ability of fiscal policy to stabilise the economy.

And this point is particularly relevant for the euro area given its institutional setup at the supra-national level. The euro area is a monetary union with no joint instruments to absorb local shocks, like a federal budget. The single monetary policy by definition has to focus on the area as a whole and cannot address local developments unless they have a proven impact on the transmission of monetary policy – such as under our Outright Monetary Transactions (OMT) programme, which is explicitly conditioned on governments being solvent under a financial assistance programme.

Therefore shock absorption within each member country has to take place either via the private sector, through financial risk-sharing, or by each national government individually through its fiscal policy. There is no doubt that financial market shock absorption must be enhanced in Europe, which is one aim of the new Capital Markets Union project.[21] Encouraging cross-border financing through equity flows instead of debt flows would clearly make the euro area more resilient. But no one imagines that we will live in a world where risk-sharing through financial markets can absorb all idiosyncratic shocks.

Hence the capacity to use fiscal policy counter-cyclically is key, which means that governments must have access to some form of asset that acts as a safe haven in crisis times. Otherwise, debt-financed fiscal policy will in fact be destabilising, since it will depress sovereign bond prices and trigger ratings downgrades, feeding back into the financial system through the channels I already described.

So how can we guarantee that sovereigns retain such market access, while preserving the market discipline on which the euro area depends?

Again, it goes without saying that the solution starts with governments improving their fiscal frameworks, at the national and at the European level. Indeed, if markets are confident in medium term fiscal sustainability, then debt issuance at the bottom of the cycle should not increase credit risk perceptions, but should rather be seen as supporting a faster return of the economy to full employment and hence a stronger fiscal position over time. And again, this has to do with the growth-friendliness of fiscal policies as well as with compliance with European rules.

Yet it is also clear that we are not starting today from a blank slate. Several euro area countries already have high public debts as a result of the crisis, which leaves them vulnerable to losing market access. So we need some form of mutualisation which does not compromise market discipline. Many ways to address this have been discussed in the literature, but there are basically two possible models.

The first model is that we accept domestic sovereign debt as inherently risky, just as for US states. It is in my view unlikely that this model would deliver the amount of fiscal space needed to stabilise the economy, meaning that we would then have to allow the *Union* to borrow and spend for local fiscal stabilisation.[22] This "common fiscal capacity" would not necessarily have to be very large. Its desirable size relative to national budgets, and to euro area GDP, is an empirical issue which I do not intend to solve here. As I have remarked elsewhere[23], I see merits in such a model so long as it is created under the veil of ignorance, meaning that risks are distributed equally *ex ante*. Our monetary union was not designed as a transfer union. Therefore any step in this direction would have to be accompanied by a convergence process towards more resilient economic structures.

A move towards more fiscal risk-sharing would also require a commensurate shift towards increased joint decision-making within strong common institutions accountable to the European Parliament.

The second model is that we split sovereign debt into a "safe" part and a "risky" part, thereby facilitating both fiscal stabilisation and market discipline at the national level. In such a set-up, senior debt would be issued in constrained amounts for counter-cyclical purposes, in line with cyclical deficits allowed by the fiscal rules, and would be risk-free from a regulatory perspective. But debt over and above the amount required for stabilisation (i.e. the structural deficit) would be subordinated and with clear risks to holders – higher capital ratios and strict exposure limits would apply to it – thus maintaining market discipline at the margin.[24] Governments, like private companies, would therefore be able to default "by degree".

Both models would, over time, lead to a greater supply of safe assets as well, but that is not primarily the point. Safe assets are a *stock* concept which can be created in various ways. But safe liabilities are about *flow* – the ability to run counter-cyclical deficits when needed – and hence depend on market access, be it at the federal or national level. It is important that, in the current discussion on safe assets, this vital aspect of safety does not get forgotten.

Conclusion

To conclude, let me come back to the "other side of the coin".

Europe needs reforms if its debt is to meet the multiple expectations society attaches to it: as a means of payment and store of value for capital market participants, as a safe liability empowering governments to perform their stabilisation role, and as a gauge of sovereign default risk, setting incentives right for governments and market participants. The alternative – making government debt safe by providing a blanket central bank guarantee – is popular among economists[25] but was firmly rejected by the European Treaties, in my view for good reasons.

Reconciling these different expectations may require a degree of fiscal risk-sharing at euro area level. But there is a common point to both approaches to risk-sharing I have just outlined – the common fiscal capacity and the "blue/red" bond proposal. Although their features are different, both need to be underpinned by a set of rules at euro area level, mutually agreed and enforced by common institutions.

Safe assets are only as safe as they are expected to be, and they are ultimately backed by legal and institutional commitments. As the Minister of Finance under the French Restoration, Baron Louis, once famously said: "If you give me good politics, I will give you good finances." Only adherence to a common political project centred on the euro can secure such commitments in a sustainable manner.[26] And as long as this project is under strain, it is no wonder that the safety of assets will remain under question.

[1] David Graeber has debunked the myth promoted by economists that money emerged from barter: in all societies money has emerged from debt and credit and barter occurs only accidentally. See Graeber, D. (2011), *Debt: The First 5,000 years*, Melville House Publishing, Chapter 2.

[2] See Hart, K. (1986), "Heads or Tails? Two Sides of the Coin", Man, Vol. 21, No 4, pp. 637–656. The "Cartalist" approach to money which relates trust in the currency to the power of the issuing authority is a minority view among economists but has received broad support in other social sciences. See Goodhart, C. (1998), "The two concepts of money", *European Journal of Political Economy*, Vol. 14, pp. 407–432. For a discussion of the institutional underpinnings and the religious origins of money, see Aglietta, A. and Orléan, A. (2002), *La monnaie entre violence et confiance*, Éditions Odile Jacob.

[3] See Paik, P.Y. and Wiesner-Hanks, M. (eds.) (2013), *Debt: Ethics, the Environment, and the Economy (21st Century Studies)*, Indiana University Press.

[4] The correspondence between the financial and moral vocabularies extends much further: "fiduciary" comes from the Latin word "fides", meaning faith, and a lot of the religious vocabulary was initially drawn from finance, including concepts such as "redemption". See Graeber (2011, *op. cit.*) for a discussion.

[5] Some have argued more generally that information-insensitive assets can aggravate crises by blurring the awareness of tail risk; see Hanson, S.G. and Sunderam, A. (2013), "Are there too many safe securities? Securitization and the incentives for information production", *Journal of Financial Economics*, Vol. 108, No 3, June, pp. 565–584.

[6] Ben Bernanke and his co-authors made a similar argument concerning private safe assets: market participants have invested in assets (e.g. securitised ones) falsely labelled as safe not because they trusted the labels, but because they expected government support in the event of bad outcomes. See Bernanke, B., Bertaut, C., Pounder DeMarco, L. and Kamin, S. (2011), "International Capital Flows and the Returns to Safe Assets in the United States, 2003–2007", *Board of Governors of the Federal Reserve System International Finance Discussion Paper*, No 1014, February.

[7] This taxonomy comes from Gelpern, A. and Gerding, E. (2016), "Inside Safe Assets", *Yale Journal on Regulation*, Vol. 33, Issue 2, Summer.

[8] Regulation *acknowledges* assets as safe because they are less risky, as is the case of the "high quality liquid assets" constituting banks' liquidity buffers. But regulation also *makes* assets safe because their default would create disruptions against the public interest: repurchase agreements are bankruptcy-remote because impairing the repo market would compromise liquidity provision to the economy.

[9] According to the Spring 2016 Eurobarometer published by the European Commission, 27% of European citizens trust their own government and 33% trust the European Union, while support for the euro is stable at 68% in the euro area.

[10] For a theory of banking supervision as the delegated monitoring of banks in the interest of depositors, see Dewatripont, M. and Tirole, J. (1994), *The Prudential Regulation of Banks*, MIT Press.

[11] On the importance of banking union for a Union with "stateless money", see Klotz, H.H. (2016), "Monetary union, banking union: Money and credit, inexorably linked", SAFE Policy Center, Goethe Universität, Frankfurt, and Center for European Studies, Harvard University.

[12] Articles 123 and 125 of the Treaty on the Functioning of the European Union respectively.

[13] One reason for this is explained by Holmstrom (2015). Sovereign debt is widely used as collateral and collateralised lending obviates the need to discover the price of the collateral. Little information is needed to reach an agreement on the price of the collateral, because the collateral has no use value in this transaction. Debt becomes information-*sensitive* only when it is close to default, with a rapid drop in price. See Holmstrom, B. (2015), "Understanding the role of debt in the financial system", *BIS Working Paper*, No 479, January.

[14] Based on Fitch ratings.

[15] See, for example, Corsetti, G. et al. (2015), *A New Start for the Eurozone: Dealing with Debt*, CEPR Press, March.

[16] See Gorton, G. and Ordoñez, G. (2013), "The Supply and Demand for Safe Assets", *NBER Working Paper*, No

18732, January.

[17] For a discussion of the global supply and demand for safe assets, see IMF (2012), "Safe assets: Financial system cornerstone?", *Global Financial Stability Report*, Chapter 3, April.

[18] See Brunnermeier, M. (2016), "ESBies: Safety in Tranches", ESRB *Working Paper Series*, No 21, September. A related initiative in the private asset universe is the creation of "simple, transparent and comparable" securitisation, which can produce senior tranches with the characteristic of safe assets.

[19] See Cœuré, B., "The ECB's operational framework in post-crisis times", speech at the Federal Reserve Bank of Kansas City's 40th Economic Policy Symposium , Jackson Hole, 27th August 2016.

[20] Greenwood, R., Hanson, S. and Stein, J. (2016), "The Federal Reserve's Balance Sheet as a Financial-Stability Tool", *mimeo*, presented at the Federal Reserve Bank of Kansas City 40th Economic Policy Symposium, Jackson Hole, August.

[21] See Cœuré, B. (2012), "Risk-sharing in EMU: Before, during and after the crisis", speech at the inaugural conference "European crisis: historical parallels and economic lessons", Julis-Rabinowitz Center for Public Policy and Finance, Princeton University, 20 April. For a recent analysis of the risk-sharing channels from the perspective of the Capital Markets Union, see European Central Bank (2016), "Financial integration and risk-sharing in a monetary union", in *Financial Integration in Europe 2016*, Special Feature A, pp. 80–98, April.

[22] Aizenmann and Pasricha (2013) have shown how the expansion in US federal spending during the Great Recession helped counteract the procyclical impact of balanced budget rules at state and local level. See Aizenmann, J. and Pasricha, G.K. (2013), "Net fiscal stimulus during the Great Recession", *Review of Development Economics*, Vol. 17, Issue 3, pp. 397–413. For a defence of the "pure" decentralised approach, see Sandbu, M. (2015), *Europe's Orphan*, chapters 7 and 8, Princeton University Press.

[23] See Cœuré, B. (2016), "A budgetary capacity for the euro area", introductory remarks at a public hearing of the European Parliament, Brussels, 2 March.

[24] See, for example, Marès, A. (2010), "Curing Demotion Sickness", Morgan Stanley Research, and von Weizacker, J. and Delpha, J. (2010), "The Blue Bond Proposal", Bruegel Policy Brief, May.

[25] For a different view, see for example de Grauwe, P. (2011), "Managing a Fragile Eurozone," CESifo Forum, Vol. 12, No 2, pp. 40–45. Gourinchas and Jeanne have argued that the trade-off between a higher interest rate and a higher inflation rate may still justify the central bank acting as lender of last resort to the government (see Gourinchas, P.O. and Jeanne, O. (2012), "Global Safe Assets", Bank for International Settlements, *Working Paper*, No 399, December.

[26] A conclusion which echoes Goodhart (1998, *op. cit.*).