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The ECB as Lender of Last Resort: Banks versus Governments

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The ECB as Lender of Last Resort: Banks versus Governments

Abstract

With the OMT program the ECB has *de facto* taken over the role as a lender of last resort (LoLR) for euro area governments. While this has been welcomed by some, many policymakers and economists, in particular in Germany, have strongly criticized the ECB for taking this step, even though it has been motivated by the same monetary policy considerations as the ECB's role as a LoLR for banks. This paper addresses four arguments that are used to explain why it is acceptable to have the ECB as a LoLR for banks, while a LoLR role for governments has to be rejected. Overall we find that the arguments fail to convince. At the same time, all of them suggest that decisive steps towards fiscal and banking union are needed for the ECB to act as a successful LoLR for governments in the medium and long term.

Key words: lender of last resort, central banking, monetary union

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1. Introduction[1]

The survival of the euro has been the most hotly debated topic in monetary economics over recent years. In Germany[2] the debate even reached the Constitutional Court, when several economists as well as representatives of the ECB and the Bundesbank exchanged arguments in the ESM/ECB hearings of the *Bundesverfassungsgericht*.[3] In essence, the OMT controversy is a debate on whether the ECB should assume the role of a lender of last resort (LoLR), (historically speaking the *raison d'être* of central banks (Goodhart 1988)), not only for banks but also for governments. As is well known, in the global financial crisis the ECB performed the role of a LoLR for banks, mainly via the full allotment policy. This policy met substantially less resistance among economists and the general public, than has the OMT, even though the OMT addresses the same monetary policy challenge – a disruption of the monetary policy transmission mechanism – as the full allotment policy. Indeed, as argued in Winkler (2014), it is inconsistent to apply ordo-liberal economic reasoning in making the case against the OMT and the ECB's role as a LoLR role for governments (Deutsche Bundesbank (2012), Fuest (2013), Konrad (2013), Sinnn (2013), Weidmann (2013b), but implicitly disregarding ordo-liberal views when the ECB performs the role of a LoLR for banks.

Against this background, this paper tackles the question whether there might be good reasons that justify a position accepting the LoLR logic for banks, i.e. for the inter-bank market, but rejecting it for governments, i.e. sovereign bond markets. Some of these arguments were debated in the Constitutional Court, others have been put forward in the public debate on whether the ECB's LoLR role should be limited to banks (Issing 2013b[4]) or applied to governments as well (De Grauwe 2011a,b,

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[1] This is a substantially revised version of Section 5 of the Frankfurt School Working Paper 206 *"Der lender of last resort vor Gericht"* which was published in German in autumn 2013 (Winkler 2013a). Moreover, it follows up on Winkler (2014). I thank Ulrich Bindseil and Charles Goodhart for helpful comments and suggestions.

[2] The peculiarity of the German debate on the euro crisis is taken up by Illing et al. (2012) and Winkler (2013b).

[3] On 7 February 2014 the German Constitutional Court handed the case to the European Court of Justice (ECJ). However, in its decision (BVerfG 2014) the Court majority clearly communicates that it considers the OMT as a violation of the ECB' mandate. It reaches this conclusion by endorsing the economic arguments made by Deutsche Bundesbank (2012), Fuest (2013), Konrad (2013), Sinn (2013), and Weidmann (2013b). Concretely, the Court majority argues that the OMT has characteristics – conditionality, selectivity, parallelism with fiscal/economic policy, circumvention of fiscal/economic policy, (unlimited) volume, market price, market logic (free market), default risk, no preferred creditor status, incentivizing market participants to purchase bonds on primary market – that disqualify the program as a monetary policy measure. Instead, the OMT is seen as a fiscal or economic policy instrument. Since fiscal and economic policies are prerogatives of the member states, the ECB exceeds its powers. In addition, the OMT violates the prohibition of monetary financing. Finally, in referring the case, the German court merely asks the ECJ whether it agrees in regarding the OMT as a non-monetary policy measure and as a violation of the monetary financing prohibition. Thus, in any case, the final ruling on whether the OMT violates the German constitution will be made in Karlsruhe.

[4] Issing (2013b) explicitly refers to Bagehot (1873) when making his case that a central bank should operate as a LoLR for banks only. However, this interpretation is inconsistent with Bagehot's view according to which "the holders of the cash reserve must be ready not only to keep it for their own

Winkler 2011, Buiter and Rahbari 2012, De Grauwe 2013).[5] Concretely, we address four arguments that have been used to explain why it is acceptable to have the ECB as a LoLR, while a LoLR role for governments has to be rejected, even though the lender of last resort logic runs counter to fundamental ordo-liberal principles for banks as well. The arguments run as follows:

1. As a LoLR for governments the ECB lacks a fiscal backstop which would allow it to play this role successfully.
2. The LoLR is the right policy instrument in an acute, short-term crisis situation. Such a situation arose in the months after the collapse of Lehman Brothers. The euro crisis, on the other hand, has been dragging on for years, and thus the LoLR role is not appropriate.
3. The example of the United States shows that a currency area does not need a LoLR for its sub-states.
4. Economic history, particularly in Germany, shows that central bank purchases of sovereign bonds ultimately always cause inflation.

The paper is structured in sections that discuss these arguments one by one. Overall we find that the arguments fail to convince in defending a position that the ECB should act as a LoLR for banks only. Instead, they suggest that the ECB needs a much stronger partner at the level of the euro area as a whole in order to be a successful LoLR for governments. Thus, we conclude that decisive steps toward fiscal and banking union are absolutely necessary in order to stabilize the euro area in the medium and long term.

2. Argument 1: As a LoLR for governments, the ECB lacks a fiscal backstop which would allow it to play this role successfully

The euro area has a unique governance structure among mature economies as there is no single euro area government (James 2011). Thus, as a LoLR for euro area governments, the ECB lacks a fiscal backstop which would allow it to play this role successfully given the inherent risks of default related to LoLR activities (Goodhart

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liabilities, but to advance it most freely for the liabilities of others. They must lend to merchants, to minor bankers, to this man and that man, whenever the security is good." (Bagehot 1873, 51 – quoted from Madigan 2009). Clearly, Bagehot did not want the central bank to play the LoLR role for banks only but for the financial system as whole. Thus, applying the Bagehot principles requires one to take into account structural changes in the financial system (Bernanke 2014). European Monetary Union represents such a structural change, and indeed it is highly unlikely that Bagehot, when writing *Lombard Street,* was envisaging the possibility that several sovereign states would set up a monetary union with a governance structure as laid down in the Maastricht Treaty, i.e. a monetary area with no central government, but large and independent member states that have issued debt in a dimension that makes government debt a key element of the financial system. Against this background, while Bagehot did not explicitly mention governments as possible beneficiaries of LoLR activities, today he might consider euro area governments as being part of "this man and that man" that he referred to 140 years ago.

[5] For an early overview of the debate see Cohen-Setton (2011).

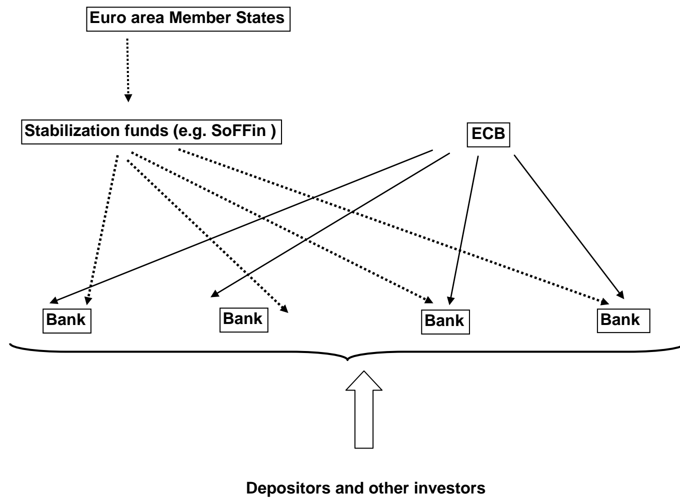
1998). This is a serious failure of European monetary union (Sims 2013), vindicating the position taken by the Bundesbank according to which any currency union is ultimately "an irrevocable joint … community which, …, requires a more far-reaching association, in the form of a comprehensive political union, if it is to prove durable." (Deutsche Bundesbank 1990, p. 40). By assuming the role of a LoLR for euro area governments, the ECB implicitly forces euro area governments to create a central government by effectively mutualizing extensive government solvency risks via the central bank balance sheet (Weidmann 2013b). However, the ECB lacks the necessary authorization and legitimacy to do so (Sinn 2013, 64). Thus, the LoLR of the ECB for euro area governments has to be rejected, whereas the LoLR for banks is acceptable if the respective member states can provide the necessary fiscal backing.

On a very general level, the argument has a valid point: There is still no euro area government that could provide the needed fiscal backing for the ECB in its role as a LoLR for governments. At the same time, the argument overlooks that first steps towards a common euro area government have already been taken, most importantly in the form of the ESM, on which the OMT program is explicitly based. Moreover, the ESM was explicitly founded for the same purpose as that on which ECB accepts the role as a LoLR for governments, namely maintaining financial stability in the euro area as a whole. In this way, the ESM plays the same role in the euro crisis which the Financial Market Stabilization Fund *(Sonderfonds Finanzmarktstabilisierung, SoFFin)* and other stabilization funds played in the global financial crisis: In both cases, the funds, limited in volume, are not primarily concerned with "rescuing" a bank or a country (although both funds do so *de facto*), but rather with "stabilizing financial markets" and safeguarding "the financial stability of the euro area as a whole". There are, therefore, good reasons to see the ESM as the same kind of fiscal backstop for the ECB as a LoLR for euro area governments, managing the euro crisis, as SoFFin and other stabilization funds were fiscal backstops for the ECB when engaging in the role of a LoLR in combatting the global financial crisis (Figure 1). Accordingly, the LoLR role for governments, as it is exerted via the OMT program, is based on the same institutional design as the LoLR role was for banks in 2008/2009, exerted via the full allotment policy. As a result, the very fact that there is no euro area government fails to convince as an argument for rejecting the LoLR for governments, but accepting a LoLR role for banks.

In terms of democratic legitimacy, it may be noted that, by linking eligibility for an OMT program to an ESM program, the ECB is placing the decision as to whether the LoLR for governments will be activated at all in the hands of the ESM. Thus, any mutualization of solvency risks by the ECB via the OMT is explicitly based on a decision of an institution granted its powers through due democratic process, and founded by the parliaments of the member states with the explicit goal of maintaining the financial stability of the euro area as a whole. Thus, the LoLR function of the ECB for governments is activated by an institution that is authorized and has democratic

legitimacy and not – as argued by Sinn (2013, 64) – by a "committee of experts" (Sinn 2013, 64) within the ECB that lacks such authorization and legitimacy.

Figure 1: The government as partner of the lender of last resort
a) Financial stability – Banks, 2008/2009

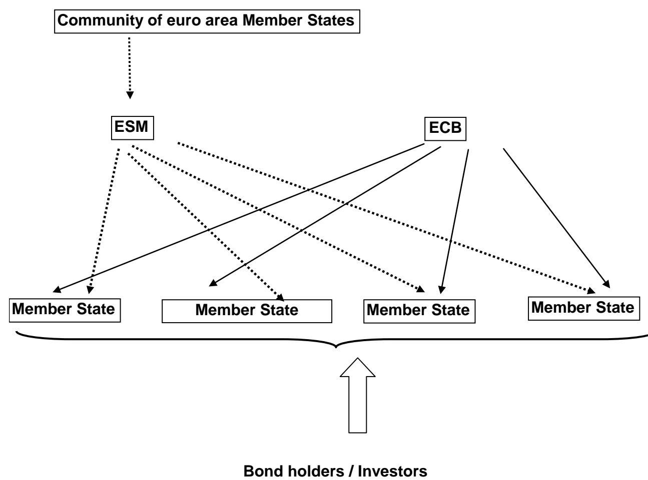


Depositors and other investors

Notes

Liquidity: *lender of last resort* (full allotment policy)
Solvency: Equity, loans, guarantees
Maturity transformation

b) Financial stability – Governments, 2012/2013



Bond holders / Investors

Notes:

Liquidity: *lender of last resort* (OMT)
Solvency: Loans
Maturity transformation

Source: Author's diagram adapted from Winkler (2011)

Accordingly, the OMT program leads to liability risks for the ECB and thus for the ECB's owners, but these risks are being managed in the same way that they were in the financial crisis in 2008/2009. Moreover, the risk entailed in failing to act must be taken into account.[6] It is these costs, and not any compulsion created by ECB actions (Sinn 2013, 38), that moved governments and parliaments of euro area member states to found the ESM with the goal to "safeguard the financial stability of the euro area as a whole". Financial stability is a public good (Goodhart 1999) which is produced jointly by the central bank and the government.

The interpretation of the ESM as a rudimentary version of a suitable partner in the euro area for the LoLR activities of the ECB does not inevitably have to be accepted. Thus, it could be useful to challenge this view before the Constitutional Court because such LoLR requires a legitimate partner if it is to be able to function successfully. This would mean, however, that a court decision against the OMT program could lead to only two logical results: either give up the euro, or quickly establish a legal framework which would allow the OMT program to pass the legal test.

Neither option, however, reflects the opinion of many economists that reject a LoLR for governments based on principled ordo-liberal concerns. They would like to strengthen their interpretation of the Maastricht Treaty, most importantly their interpretation with regard to the principle of stable money and their interpretation of the liability principle which should be strictly enforced at the national level (Feld 2012, Feld et al. 2012).[7] From this point of view, a challenge to the OMT in court based on the LoLR perspective would oppose the very economic reasoning on which they would like European Monetary Union to be based. Indeed, fundamental ordo-liberal considerations lead to a rejection of any step towards a euro area government, including those aspects that are needed to have an appropriate counterpart for the ECB when it engages in LoLR activities. A central bank that has no government counterpart can issue a currency that comes close to the concept of a "depoliticized currency" (Issing 2011), i.e. a currency that promises a substantially higher degree of monetary stability, exactly because it does not have to fear interference from a

[6] These costs are often not mentioned when the ECB is criticized as taking over as LoLR for governments, for example they are not mentioned by the OMT opponents in court. This contrasts not only with Eichengreen (2010), who envisages the collapse of the euro as the mother of all financial crises, but also with official declarations made by central bankers in the 2008/2009 crisis when defending the ECB's role as a LoLR for banks. For example, Weber (2009b, 6) argues that the rescue of the German Hypo Real Estate was "without alternatives" because "the collapse of a further institution which was too big to fail would have led to serious upheaval within the German financial system".

[7] Weidmann (2013b) takes a more cautious approach in that he neither rules out, nor supports moving towards, a fundamental "deepening of European integration, for example in the form of joint liability or joint financial and economic policies" (i.e. he does not explicitly reiterate the view expressed in Deutsche Bundesbank (1990)). His skepticism regarding such tendencies becomes clear only in an aside, namely in his comment that steps in this direction must be adequately authorized "in any event, regardless of how much sense they may make".

government as occurs in the usual set-up within a nation.[8] Thus, the argument that the LoLR in the form of the OMT program should be rejected because it lacks a government as partner, is inconsistent with the theoretical foundation on which the economic logic against a LoLR for governments is built upon. Indeed, the argument that the ECB lacks a suitable partner as a LoLR in euro area government bond markets only makes sense from a LoLR perspective.

3. Argument 2: The lender of last resort is the right policy instrument in an acute, short-term crisis situation only

A second argument that is used to justify the ECB's role as a LoLR for banks but rejecting such a role for governments is the length of the euro crisis itself. While fundamental ordo-liberal reasoning leads to the conclusion that a LoLR for banks violates the liability and monetary stability principles established by Eucken (1990) as much as a LoLR for governments, the former role can be defended on the grounds that in an acute crisis, such as the one observed in 2008/2009, there is "no alternative" (Weber 2009b, 6) to a LoLR role vis-à-vis banks. Thus, as a short-term instrument and facing a temporary spike in systemic risk to a degree never before seen (Barbier 2008), the ECB's role as a LoLR is acceptable even from an ordo-liberal perspective. The global financial crisis was then also quickly brought to an end and the crisis measures expired, at least in the United States (Madigan 2009). The euro crisis, however, already has lasted for more than three years. Thus, a LoLR role for governments cannot be justified as an emergency policy such as a LoLR role for banks in 2008/2009.[9]

There is little doubt that economic efficiency and growth suffers if policies are run in crisis mode over an extended period of time. However, the argument that the short-term nature of the banking crisis in 2008/2009 justifies a LoLR role for banks, while the long-term nature of the euro crisis that started in 2010 suggests that a LoLR role for governments is inappropriate, is reversing cause and effect. For the rapid mastering of the global financial crisis largely reflects the fact that the ECB response to the interbank market turmoil in 2008/2009 was decisive, rapid and partly undertaken with unusual measures (Weber 2009a). This was not the case in 2010 when sovereign bond markets were severely distressed.

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[8] This view goes back to Menger (1892) who essentially sees money as the expression of a " private sector, market-oriented response to overcome the transaction costs inherent in barter" and not as a debt instrument in whose issuance the government has always played a key role (Goodhart 1998, 408; see also Richter 2013). Sims (2013) provides further arguments that challenge the view that a "depoliticized" currency has a stability advantage.

[9] Consistent with this line of reasoning, Weidmann (2013e) calls for an end to measures supporting the banking sector as soon as possible, given that they have been in use for a long time and hence might lead to financial dominance, i.e. violating the principles of stable money and liability.

In 2008/2009 the policy response to the crisis was largely based on the unlimited deployment of the lender of last resort[10] and financial market policy instruments in the form of various stabilization funds (and in the German example in the form of an unconditional guarantee of all bank deposits by the Chancellor and the Finance Minister, for an unlimited period of time and in an unlimited volume). These decisive steps were credible because the use of these instruments went almost unquestioned, whether by monetary and fiscal policymakers, politicians, economists or public opinion, even though it was implicitly acknowledged that the measures were hardly compatible with ordoliberal views.[11] However, in public, no one (repeatedly) noted that not anything goes, even in a crisis (Weidmann 2013c) and no chairman of a parliamentary group called for the ECB to refrain from financing banks whose solvency was put in doubt once a fiscal mechanism for crisis management, i.e. in Germany the SoFFin, had been founded.[12] At that time, all confidence enhancing measures were deemed appropriate because only a revival of confidence would prevent the collapse of the German (and of the international) financial system.

In early 2010, however, when the euro crisis began with the revision of Greece's debt and deficit statistics, the proven instruments for combatting a crisis were replaced by calls for the strict enforcement of the principle of liability and the primacy of stable money. Only once it became clear in early May 2010 that this strategy would lead to an implosion of the financial system and of the euro (Irwin 2013) was the European Financial Stability Facility (EFSF) set up, and the LoLR, via the SMP, activated. However, practically starting on the next day, this course of action faced severe criticism (see Weber 2010, Franz et al. 2010, Advisory Council [*Wissenschaftlicher Beirat*] 2011). Partly in light of this criticism,[13] the ECB refrained from consistently carrying out its LoLR function and acquired sovereign debt instruments to a limited extent only, thereby violating the "to lend freely" principle set by Bagehot (1873). At the same time, efforts for private sector involvement (PSI) in the restructuring of public debt gained momentum, reflecting the idea of upholding the principle of liability.

The point that was overlooked was that enforcement of the liability principle would lead to an even greater loss of confidence in the debtors concerned, i.e. the euro area crisis countries. Thus, it undermined the boost to confidence that was triggered just months before by founding the EFSF. Accordingly, when, following the German

[10] Moreover, this response – seen at the time as an indisputable monetary policy measure – was accompanied by expansionary fiscal policies in all mature economies.
[11] See, for example, Stark (2009).
[12] Sinn (2013, 25) quotes the CDU/CSU parliamentary group chairman Volker Kauder, who put the EFSF into this perspective: "I would like to explicitly state on behalf of our coalition: Once we have established, in the framework of setting up the EFSF, that bonds can be bought up on the secondary market under certain conditions, then we do not want the ECB purchasing such bonds in the future any longer."
[13] It will be shown below that this was not the only reason for foot-dragging in the deployment of LoLR.

Federal Chancellor's legendary walk with the French President in Deauville, France, PSI became official EU policy – the right decision in ordoliberal terms –, investors responded by selling the sovereign debt instruments of the crisis countries. One month later, Ireland which had come under suspicion of insolvency as the crisis in the banking sector deepened, applied for an EFSF rescue package. Again, a comparison with 2008/2009 is telling. At that time no such contradictory steps were taken. Neither did the ECB stop its full allotment policy at the start of 2009, nor did the German Federal Chancellor and Finance Minister make a joint television appearance in March 2009 announcing that the guarantee for bank deposits was being withdrawn, and instead, in the future, banks would be allowed to go bankrupt and bank creditors might suffer losses.

One year later, in autumn 2011, the haircut for Greece was agreed. The principle of liability was thus maintained. Immediately, bonds of euro area member states with a risk of default came under renewed pressure. At the same time, strong demand for safe haven assets, such as German government bonds and bank deposits, set in. A parallel step in the global financial crisis of 2008 would have been for the German government to organize a haircut for the liabilities of Hypo Real Estate (HRE), Commerzbank and various public banks [*Landesbanken*] in order to reinstate or ensure the solvency of these institutions. By doing so it would have maintained the principle of liability. However, instead of strengthening confidence in the functioning of the financial system and the market economy as a whole, most likely it would have destroyed the system, as German savers and investors would have responded by withdrawing their deposits and loans from the affected banks and transferring them to those considered safe, e.g. the savings and loan institutions [*Sparkassen*] and cooperative banks [*Genossenschaftsbanken*]. As a result, the crisis banks would have been forced to turn to the ECB for funding. With massive implications for the ECB's balance sheet, as was the case after the Greek haircut to which the ECB responded by its 3-year long-term refinancing operations.

Overall, it can be concluded that the difference between the financial crisis in 2008/2009, in comparison to the euro crisis from 2010 onwards, does not lie in the short duration of the crisis after the bankruptcy of Lehman Brothers. Rather the difference is found in the decisiveness and credibility with which policymakers deployed the instruments that allowed the ECB to act as a successful LoLR in 2008/2009 while rejecting both, a LoLR role for the ECB and the very instruments that are needed to perform this role successfully in 2010. From an economic point of view, there is no justification for this different approach, regardless of which concept one supports: From an ordoliberal viewpoint, any financing of crisis banks by the ECB should have been rejected in 2008 with the same vigor as the financing of crisis countries under the SMP or OMT; from a lender of last resort perspective, every indication was for fast and decisive intervention both in 2008/2009 and in 2010.

There is one key difference that can, at least partly, explain the inconsistency with which the crises were tackled. It lies in the lack of an institutional framework for euro area crisis management, which made decisive and credible action of the kind taken in 2008 almost impossible in 2010. The Maastricht Treaty simply did not provide for the institutions and instruments needed to conduct proper crisis management (Winkler 2011, Buiter and Rhabari 2012, Schmieding 2013). This institutional framework has now been created by setting up the ESM as a permanent stability mechanism. The OMT program uses this framework in order to defuse the crisis with the same decisiveness for governments as was seen in 2008/2009 with the full allotment policy for the banking sector. The result tells its own tale: Since the ECB embraced the LoLR role for governments via the OMT program (i.e. since the speech of ECB President Draghi in London (Draghi 2012)), the euro crisis as a financial crisis has almost disappeared from public view,[14] just like the global financial crisis after the ECB acting as a LoLR for banks via the full allotment policy.[15] Thus, the argument that LoLR policies were appropriate in the acute, short-term global financial crisis but inappropriate to fight the long lasting euro crisis fails to convince.

4. Argument 3: The example of the United States shows that a currency area does not need a lender of last resort for its sub-states

A key argument supporting the view that the ECB should act as a LoLR both for banks and for governments is the notion that euro area governments, like banks, perform maturity transformation and could therefore be exposed to a run (Diamond and Dybvig 1983, Giavazzi and Pagano 1990, Cole and Kehoe 1996, Buiter and Rahbari 2012). The example of the US currency union, however, suggests that this line of argument falls short.[16] When some states actually defaulted in the period prior to the US Civil War (Wallis et al. 2004) the no-bailout clause was strictly enforced. Thus, US states in financial difficulties cannot count on receiving support, neither from the federal government (or a stabilization fund similar to the ESM) nor from the

[14] The macroeconomic crisis in the euro area, in contrast, continues. With the ECB – like the Federal Reserve in 2009 – being confronted with the zero bound, efforts are under way to adapt the set of monetary policy instruments, including communication policy, to this situation. However, as stressed by Bernanke (2014), these efforts are not part of financial crisis management but constitute monetary policy once the zero bound has been hit.

[15] Even the surprising outcome of the elections in Italy in February 2013 did not change this. It was the negotiations regarding the rescue package for Cyprus, and the results of these negotiations, that fueled the euro crisis anew. And once again, the reason was that the euro crisis managers wanted to enforce the principle of liability, at least in part (and ultimately did manage to enforce it). The fact that Cyprus has had a "special" banking sector with a high volume of deposits from non-euro area residents reduced what little inclination there was to suspend creditor liability and replace it with a liability borne by the European taxpayer. In the process, however, the crisis managers made the fatal error of including creditors with deposits of less than EUR 100,000 under the first rescue package, i.e. creditors who were protected by deposit insurance. This led to a considerable loss of confidence. At least in Germany, the government assessed this loss as large enough to reaffirm the guarantee for all deposits which had been issued in October 2008.

[16] The comparison between the euro area and the US, sometimes illustrated by the examples of Greece and California, is an essential component of the debate on whether the ECB is right in performing a LoLR role for governments. See, for example, Fuest and Peichl (2012) and Bertola et al. (2013).

central bank. It is possible to have a monetary union without a central bank acting as a LoLR for governments. As a result, while the LoLR role both for banks and also for governments might be based on the same kind of economic reasoning, namely fragilities related to maturity transformation and asymmetric information, this does not necessarily lead to the conclusion that central banks should perform both roles. In the US monetary union, at least, the Federal Reserve is available for US banks and the US financial system as a LoLR, while it rejects such a role for individual US states.

This argument has a valid point, but it overlooks three decisive differences between the US and the euro area which explain why the Federal Reserve does not have to play the role of a LoLR for governments within the US monetary union.

1. The US, in contrast to the euro area, is a fiscal union, i.e. it has a central government whose budget amounted to 36% of US GDP in the pre-crisis period (to compare: the EU budget has a size of around 1% of EU GDP). This means that the impact of a US state default on economic activity in that state would presumably be substantial, but not dramatic, because all federal obligations – including transfers to the state themselves – would continue to be met. Unemployment insurance, organised at the federal level, would even provide for an anti-cyclical effect (Krugman 2011).
2. The US, in contrast to the euro area, is a banking union.[17] The systems providing a safety net at the federal level include deposit insurance (the Federal Deposit Insurance Corporation, or FDIC), which – together with the regulatory authorities of the individual states and the Federal Office of the Comptroller of the Currency – is responsible for the liquidation of bankrupt banks. Accordingly, state-level banking crises are managed at the federal level. Situations such as those in Ireland and Spain, where doubts as to the governments' solvency were a result largely of (executed or anticipated) government rescue measures for the banks, are not possible in US states (Krugman 2011, Gros 2012).
3. Confronted with a financial crisis, the US government and the Federal Reserve have been pursuing an extremely expansionary fiscal and monetary policy for the currency union as a whole. The goal of these policies was to prevent a repeat of the Great Depression (Bernanke 2014). As a result US government debt climbed from 66% of gross national product in 2007 to 106% in 2012 (to compare: the corresponding figures in the euro area were 66% and 93%).[18] The Federal Reserve

[17] Prior to the Great Depression, bank resolution, restructuring and deposit insurance were based at the state level, just as in the euro area in the present day. However, state authorities were overwhelmed in the 1929-1933 financial crisis. As a result, the FDIC was founded, whose effectiveness is based not least on the fact that "if ever needed, the FDIC can draw on a line of credit with the US Treasury. FDIC deposit insurance is backed by the full faith and credit of the United States government. This means that the resources of the United States government stand behind FDIC-insured depositors." Aizenman (2012); see also Gros and Schoenmaker (2012).

[18] In light of this fiscal policy course, the Federal Reserve has consistently called for a credible long-term consolidation strategy which would also address the structural problems in the healthcare area and the aging of society. At the same time, it has continued to emphasize that the cyclical effects of a transition to a more restrictive fiscal policy must be taken into account (see – for example – Bernanke 2013, 2014).

aggressively lowered the federal funds rate which – since the end of 2008 – has stood at 0.25%. On top of this, there have been three quantitative easing programs.

These differences are of considerable significance when assessing the need for a LoLR for governments in the US compared to the euro area. For a strong federal government, comprising a fiscal and a banking union, and a central bank which are aware of their macroeconomic and systemic responsibilities, create an institutional and economic environment in which the systemic effects of defaults by individual states or banks are limited and manageable (O'Rourke and Taylor 2013). This is because, given this environment, the risks of contagion are limited. Creditors of states or banks do not necessarily interpret the bankruptcy of an individual state or bank as a signal of the likelihood of a bankruptcy of another state or bank.[19] "A real financial crisis [characterized by excess demand for base money – *author's note*] occurs only when institutions do not exist" (Schwartz 1986, 12). In the US these institutions have been in place since 1913 (with the founding of the Federal Reserve)[20] and 1933 (with the founding of the FDIC and the federal government assuming and expanding its responsibility for macroeconomic stability (DeLong 1998, Bordo et al. 2013)). The US is also willing to tackle residual systemic risks directly, as shown by the example of the AIG bailout and the forced capitalization of banks after the Lehman bankruptcy (Hoshi and Kashyap 2013). Thus, successful systemic crisis management allows the US to maintain the no-bail out clause for state governments and to uphold the principle of liability. Once the systemic part of the crisis has been overcome, the same applies for non-systemic banks, as evidenced by the more than 400 bank failures in the US since 2007. As a result a "zombification" (Fuest 2013b) of the banking system has been avoided.

In the euro area, however, there is no institutional environment comparable to that in the US: There is neither a fiscal union nor a banking union. Moreover, fiscal and monetary policy have been more restrictive in Europe in recent years than in the US. However, most economists arguing against the ECB's role as a LoLR for governments, point to the US no-bailout clause in support of their case, largely rejecting the notion of taking any steps to bring Europe closer to the US example in institutional terms (Feld 2012, Feld et al. 2012) and in terms of macroeconomic policy

[19] Ang and Langstaff (2011) show that "there is much less systemic risk among U.S. sovereigns than among Eurozone sovereigns" and interpret this result as suggesting that "systemic sovereign risk has its roots in financial markets rather than in macroeconomic fundamentals", which supports the view that institutions and the institutional set-up of a currency union matter. Henning and Kessler (2012) note that without the expansionary, anti-cyclical fiscal policy of the federal government, fiscal consolidation at the level of the individual state, i.e. a procyclical behavior similar to that observable in the euro crisis states (IMF 2013, 40), would be very difficult or even impossible to achieve.

[20] James et al. (2013) argue that before the founding of the Federal Reserve the US barely qualified as an "enduring" monetary union. The monetary union was again put at risk in the Great Depression when the Federal Reserve failed to carry out its LoLR role appropriately and to provide liquidity in sufficient amounts; see Friedman and Schwartz (1965) and Schwartz (1986).

making.[21] As a result, the reference to the US as a functioning monetary union with a credible no-bailout clause for states (and banks) is highly selective. While the US does strictly apply the principle of liability for the states, it has, at the same time, founded institutions which to a large extent pool liabilities of governments and banks at the federal level of the monetary union. Thus, at the federal level policy makers are prepared and willing to tackle systemic crises "decisively, quickly and by means of exceptional measures" by fiscal, financial market and monetary policies. Paradoxically, the US example shows that these policies have strengthened the enforcement of the liability principle because there is a "credible fiscal backstop" (Pisani-Ferry and Wolff 2012) anchored in a strong federal government.[22]

Overall, we conclude that it is inconsistent to point to the US as a benchmark when it comes to rejecting a LoLR role for the ECB with regard to euro area governments but ignoring the US example with regard to institutional environment and macroeconomic policy making. In total, the US model is unsuited to serve as an argument against the ECB performing a LoLR function for governments. Rather, the comparison with the US serves to indicate that the LoLR function for governments via the OMT program (and the ESM) are necessary pillars of a stable monetary union which, in terms of its governance structure, is very differently designed than the US monetary union today. At best, the US example gives a sense that current euro area arrangement can only function as a "temporary bridge" (Illing 2013, 11) on the way towards "more Europe". US economic history suggests that repeated financial crises triggered a move towards "more centralization", ultimately creating the federal institutions which make the no-bailout clause for states credible in a modern democracy with a highly developed and integrated financial system (O'Rourke and Taylor 2013). Thus, the US example signals that a return to the original Maastricht design of EMU will not stabilize the

[21] For example, among the economists testifying against the OMT in court, Konrad, Sinn and Uhlig have signed an open letter against the banking union (Krämer 2012). Fuest (2012) and Weidmann (2013e) are in favor of a banking union, but are skeptical with regard to a fiscal union. The US approach to fiscal and monetary policies is largely rejected. Sinn (2013, 49) speaks of "excessive federal deficits" in the US". Weidmann (2013d) and Stark (2012) implicitly refer also to the Federal Reserve, the Bank of England and the Bank of Japan in their critical review of monetary policy in the post-crisis period by using the term "central banks".

[22] This does not mean that creating such a backstop in Europe will be an easy task. Indeed, US history provides evidence for this as well, as the move toward a strong US fiscal union proved to be more "dynamite than cement" (Bertola et al. 2013, 97). Thus, European monetary could be shattered by steps towards fiscal union. However, those who argue that in the medium to long-term a substantially deeper integration in fiscal terms will be indispensable to make monetary union in Europe sustainable are not naively believing that a fiscal union in Europe is easily built and will solve all problems. The opposite is true: those who argue that steps towards fiscal union cannot be taken – for example, because they believe that voters in euro area member states will not accept this (Issing 2013a) – avoid an answer to the question that the US example clearly suggests, namely whether from a purely economic point of view steps toward a fiscal union are not the only way to stabilize EMU in the face of the kinds of shocks which have led it into an existential crisis in recent years. Indeed, the argument can be put on its head: only a move toward fiscal union will provide Europe with an ultimate answer to the question whether its citizens indeed have a "shared belief system" (Richter 2013, 145), i.e represent the *joint community* referred to in Deutsche Bundesbank (1990), which is necessary for the successful issuance of a common currency. If a shared belief system is not in place, the euro should be given up as unviable.

euro area, while the ECB acting as LoLR for governments, as laid down in the OMT program and backed by the ESM, appears to be an interim solution on the long journey to greater centralization of fiscal and financial market policies in the euro area.

5. Argument 4: Economic history, particularly in Germany, shows that central bank purchases of sovereign bonds ultimately always cause inflation

A final argument, which might justify the view that the ECB's role as a LoLR for banks is acceptable while taking over the LoLR role for governments should be strongly rejected, is that the purchase of sovereign bonds by a central bank ultimately always causes inflation, while this is not the case with the purchase of bank debt. German economic history provides an impressive illustration of this with the hyperinflation of 1922/1923. The experiences of several of today's euro member states in the inflationary 1970s also support this argument (Stark 2014). It was precisely this experience which led to the inclusion of an explicit ban on monetary financing in the Maastricht Treaty, while the lender of last resort function vis-à-vis banks was not mentioned at all.

This argument overlooks the fact that the Maastricht Treaty also in principle allows the purchase of sovereign bonds on the secondary market for monetary policy purposes. Moreover, other central banks, most prominently the Federal Reserve, have been conducting monetary policy via the purchase and sale of sovereign bonds for decades without inflation being substantially above the level of countries that issue base money via lending to banks. Finally, there are a number of examples demonstrating that inflation, and even hyperinflation, may also reflect a lax attitude towards refinancing of the banking system, i.e. financial dominance.[23] Thus, rejecting a LoLR function for governments does not necessarily guarantee price stability while arguing in favor of a LoLR role for governments is not necessarily inconsistent with a central bank maintaining price stability.

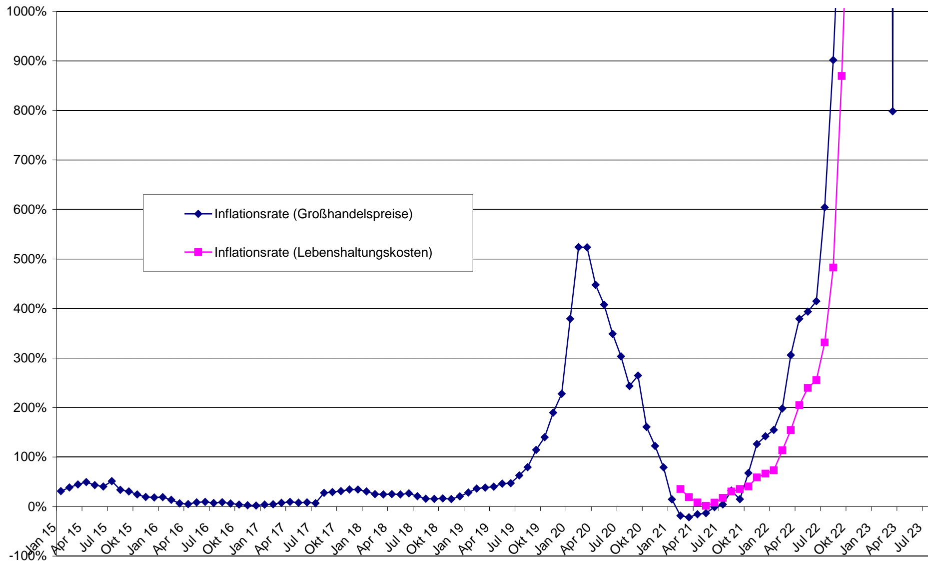
That said, however, the trauma of the German hyperinflation of 1922/23 is referred to again and again, whether explicitly or implicitly, with reference to the euro crisis and the monetary policy responses of the ECB, most notably with regard to its new role as a LoLR for governments via the OMT (O'Callaghan 2012). This is the case even though inflation in the euro area has remained in the target range for the ECB since the start of the global financial crisis (just under 2% over the medium term) and inflation expectations are well anchored. Despite all the warnings and critical voices which have repeatedly been heard since 2008, the ECB has consistently fulfilled its mandate of maintaining price stability.

[23] One such example being the ruble zone in the years 1992-1993, recently chosen by Mayer (2013b) for a comparison to the euro area (see also Becker 2013).

The experiences of 1922/23 seem to suggest, however, that a stable inflation rate in the present is not a guarantee that it will continue to remain stable in the future. Rather, expectations of inflation and inflation itself can spiral very rapidly if citizens lose confidence in the stability of the currency (Cagan 1956). This risk rises when the central bank purchases sovereign bonds, finances public-sector budget deficits and, moreover, announces that it will do so on an unlimited basis: “The apparent lack of alternatives [because otherwise the euro threatens to collapse – *author’s note*] leads to … a conclusion that monetary policy must act, regardless of legal, economic and institutional barriers to action. Monetary policy actions in such a situation can strengthen the impression on the part of the governments that fobbing off the pressure to act onto monetary policy is a worthwhile strategy from a national perspective, because the costs connected with it can thus be reduced or shifted away entirely. The lack of alternatives for the central banks’ actions thus become a self-fulfilling prophecy.” (Bundesbank 2012, 14f.) Accordingly, “policymakers should not assume that they are on safe ground just because inflation expectations are firmly anchored. Only if agents expect deviations from a “virtuous regime” of monetary dominance to be short-lived – say, because policymakers still enjoy high credibility – will inflation expectations remain well anchored. However, if agents learn that the deviation is going to last for longer than initially expected, their inflation expectations will change. And this might happen very suddenly.” (Weidmann 2013a)

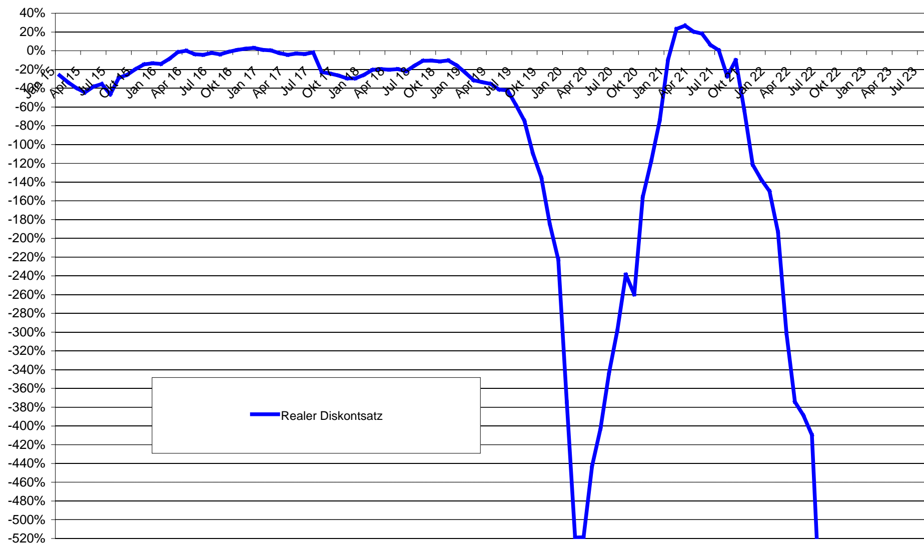
The argument is compelling: A monetary policy which no longer recognizes any limits (Stark 2013) leads to inflation, because the private sector is no longer willing to hold base money. Due to fiscal dominance, the central bank loses its credibility in maintaining price stability (Weidmann 2013a). This sows the seed for a vicious cycle in which rapidly rising expectations of inflation are confirmed by rapidly rising inflation rates, which then increases inflation expectations still further, leading to an even higher inflation rate. The strong expansion of base money in the crisis years will then be followed by a rising money multiplier. The money supply thus rises and, driven by an increasing velocity of circulation, as the private sector no longer wishes to hold money, hyperinflation sets in.

Figure 2: Inflation in the German Reich, January 1915 – August 1923



Source: Holfterich (1986) and own calculations

Figure 3: Real Discount Rate* in the German Reich,
January 1915 – August 1923



** Nominal discount rate – Annual inflation rate (wholesale prices)*
Source: Holfterich (1986), Deutsche Bundesbank (1976) and own calculations

This was precisely the case in 1922/23: the government increased spending – in order to support striking workers in the Ruhr area – but was reluctant to cut other expenditures or to increase taxes. Instead, it made use of the Reichsbank (Teutul 1962, 45). However, after four years of monetary war financing and a post-war period in which year-on-year inflation (as measured by the wholesale price index) fell below 4% in only nine out of a total of 84 months (Figure 2), the Reichsbank had lost its credibility. Thus, the private sector did not want to hold base money any longer, also because it was supplied at a dramatically negative real interest rate. The Reichsbank had maintained the discount rate at an unchanged level of 5% p.a. despite inflation rates of up to 50% p.a. during the First World War and three-digit inflation rates in the first years after the war, only then to raise it too slowly, during hyperinflation, to a fully inadequate 90% p.a. As a result, real interest rates were strongly negative, i.e. in most months in double-digit territories and reaching more than -500% p.a. in mid-1920 and in the final months of the hyperinflation episode in 1923 (Figure 3).

The example seems to suggest that in the end central bank purchases of government bonds will always lead to hyperinflation. However, this is a premature conclusion, because the hyperinflation episode in the 1920s was the result of monetary policy rapidly expanding the supply of base money when there was no demand for base money. Moreover, there was no shock that triggered a rise in such demand. The late 1910s, early 1920s – as bad as they had been in political and economic terms– were not characterized by a "real" financial crisis (Schwartz 1986) that would trigger such a rise in demand. Without such a crisis, however, any strong expansion of base money, regardless whether it reflects the purchase of government bonds or bank lending, is a departure from the "virtuous regime". Accordingly, the price of money (measured in goods) declines, inflation and – if the central bank fails to take drastic measures[24] – hyperinflation sets in.

In the financial and euro crisis, however, the expansion of the ECB's balance sheet reflects an increase in the demand for liquidity. The non-bank private sector and the non-crisis banks wanted to sell assets, sovereign debt instruments, claims on banks and other financial instruments which they had purchased voluntarily in the pre-crisis period (Goodhart 1987, Calomiris and Gorton 1991). The non-bank private sector and the non-crisis banks wished to exchange these assets, issued by debtors whose solvency had been put in doubt, against assets that were considered as safe, such as bonds and bills issued by stabilization funds or base money. The ECB, therefore, has not been forcing base money on the private sector, as the Reichsbank did when it financed government expenditures and thereby started the hyperinflation of 1922/1923; rather the expansion of base money has reflected a substantial rise in the private sector's demand for such base money. The fact that no inflation has resulted from the rapid and strong expansion of central banks' balance sheets – charcterizing

[24] The monetary policy of the Federal Reserve under Paul Volcker (1979-1982) is an example of such measures. At that time, the real federal funds rate was raised to previously unknown levels.

all mature economies since late 2008 – is therefore due not to the (evidently) continued credibility of the ECB and other western central banks. Rather, the lack of inflation is due to the fact that central banks have not done anything more, to date, than to adjust the supply of base money to meet the increase in demand.

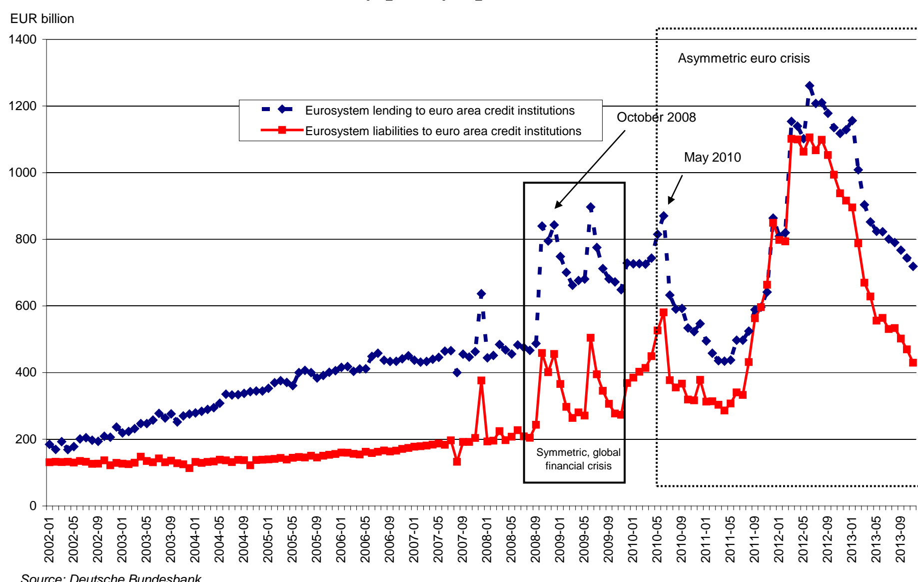
Failing to satisfy the demand for base money in a financial crisis is deflationary, however. This lesson has been taught by the example of the Great Depression, when the Federal Reserve failed to act because it believed it had to respond to the same anxieties about inflation which have been repeatedly put forward in the contemporary debate over the monetary policy of the ECB and other western central banks, notably the Federal Reserve (Bernanke 2014).[25] The misunderstanding, which, then as now, made an expansionary monetary policy appear inflationary in an essentially deflationary environment, centers on the accumulation of excess reserves (Calomiris 1993, Keister and McAndrews 2009, Sheard 2013). While it represents the demand of the non-crisis banks for liquidity, many observers interpret excess reserves as a potential for a (sudden) increase in credit supply. Given the decline in output, in the Great Depression of the early 1930s and the Great Recession after 2008, this must inevitably lead to inflation. Moreover, crisis management by central banks, acting as a LoLR for banks and/or for governments, plants the seed for a new credit boom or an asset price bubble, thereby creating the same problem that started the current crisis. Accordingly, the central bank, in carrying out its crisis policies, must not lose its sense of proportion – this is the argument which was put forth in the early 1930s (Bernanke and James 1991, James 2002, White 2008), and it is the argument that has been put forth today (Borio 2012, White 2012).

This interpretation of excess reserves is false. Excess reserves do not reflect a potential for inflation in the future, but rather the depth of the present crisis of confidence, notably with regard to the value of assets the private sector has accumulated in the pre-crisis period (sovereign debt instruments, deposits and other liabilities of crisis banks) and hence a demand for liquidity. The promise to provide "unlimited" credit if necessary, which has been fulfilled by the ECB acting as a LoLR for banks under the full allotment policy and announced by the ECB acting as a LoLR for governments under the OMT program, therefore serves not as an invitation to crisis governments or crisis banks to run unchecked into debt (Konrad 2013, 438),[26] but rather as a means of satisfying the demand for base money by non-crisis banks and the non-bank private sector. As this promise creates confidence, the non-bank private sector and the non-crisis banks either refrain from selling claims on crisis banks or crisis countries and exchanging them for base money or return to the market by lending to crisis banks and countries anew. The success achieved by the

[25] See Friedman and Schwartz (1965) who strongly criticized the Federal Reserve for listening to these voices in the early 1930s and thereby failing to respond to the increase in base money demand at the time with a monetary policy expansion. In the spirit of Friedman and Schwartz (1965) Hetzel (2013) provides a critique of the too restrictive ECB policy in the post-crisis period.
[26] Sinn (2014) even (mis-)interprets this as a "soft budget constraint".

announcement leads, therefore, not to an increase in, but rather to a decline in base money growth and levels.

Figure 4: Eurosystem lending to / liabilities to euro area credit institutions related to monetary policy operations denominated in euro



This is exactly what happened after the ECB assumed the role of a LoLR for banks in October 2008 and as a LoLR for governments in July 2012 (Figure 4): The volume of base money provided through monetary policy operations declines quickly after their establishment, i.e. after October 2008 (global financial crisis) and after July 2012 (euro crisis), because the base money demand of the private sector and the non-crisis banks fell.[27] The frequently evoked exit problem, i.e. how to roll back these extraordinary monetary policy measures, does not arise. With confidence returning, the supply of liquidity falls with the decline in demand for liquidity. This underscores the symmetry between a central bank operating as a LoLR for banks and for governments: Just as a decline in base money was observed after implementation of the full allotment policy and the subsequent return to confidence on the inter-bank market, so also there was a decline in base money after the announcement of the OMT program and the subsequent return to confidence on the sovereign bond market.[28]

[27] It is the "magic of OMT" (Giavazzi et al. 2013) that, in contrast to its role as a LoLR for banks, the ECB was able to create this confidence without having had to buy a single sovereign bond to date.

[28] Sinn (2013, 11) argues with regard to the TARGET2 balances – which to a large extent reflect the pattern of Eurosystem lending to euro area credit institutions during the asymmetric euro crisis (Figure 4) – that 23% of their decline after the announcement of the OMT program can be attributed to loans of euro area governments to the crisis countries. Thus, it is not the confidence effect created by the OMT but the substitution of ECB credit with credit by the ESM and other inter-governmental rescue funds, including IMF lending that explains the decline in ECB credit to euro area banks. However, this is a normal phenomenon and actually very close to the experience in the symmetric and global financial crisis 2008/2009. For example in the case of Germany, Bundesbank lending to crisis banks in Germany

The risk of inflation arises, therefore, not due to the OMT program or the full allotment policy, but rather when the central bank, once the crisis has been overcome, actively aims at preventing the supply of base money falling with demand (Sheard 2013). This is the red line which a stability-oriented monetary policy must not cross: forcing the private sector to accept base money which it does not wish to hold. This means, however, that a possible rise of inflation in the future is independent of crisis management policies: Failing to engage in crisis management, i.e. giving up the goal of price stability when crisis conditions are tending to lead to deflation,[29] and does not help to guarantee price stability in the future.

There are two further arguments which are used to reject a LoLR role for governments, while accepting it for banks, linked to the general notion that any purchase of government bonds will in the end lead to inflation. The first argument runs as follows: With the OMT program – in the event that it were to be activated – the ECB might not only buy sovereign bonds which had been purchased by the private sector voluntarily prior to the crisis; it could in fact – via the shortcut of the secondary market – also finance new deficits. This could trigger inflation as the budget deficits in the crisis countries are still high, even if they have been declining in most countries, as a percentage of GDP as well as in absolute amounts (see Table 1).

There are two reasons for rejecting this argument as invalid. The first reason is based on an analysis of conditions in government bond markets. In 1915/1923 (and in the inflationary 1970s), the Reichsbank (the central banks of the respective countries) created base money by purchasing government bonds even though the private sector would have bought newly issued sovereign bonds carrying an appropriate yield (Teutul 1962, 439). However, the German government did not want to incur any (or only very limited) costs in financing the additional expenditures, and in consequence

led to an overall increase of the Bundesbank's outstanding claims against the banking sector by EUR 117 billion (an increase of about 65%) between August and October 2008. Loans outstanding started to decline after the full allotment policy was announced, i.e. after the ECB assumed the role of a LoLR for the banking sector. However, just as after July 2012 for the Eurosystem, the decline partly reflected a substitution of Bundesbank loans with instruments provided by the SoFFin. Capital injections to crisis banks alone amounted to EUR 25.7 billion (FMSA 2013) as of the end of 2009, or just under 22% of the increase in lending by the Bundesbank to German banks in the crisis months. Moreover, the full allotment policy provided the same kind of costless insurance for the creditors of crisis banks, who responded to this insurance by returning to the market and lending again to the crisis banks, as the OMT provides insurance for new private cashflows "for the purchase of new government bonds of the southern [European] countries." (Sinn 2013, 36) However, while Sinn (2013) strongly criticizes this costless insurance by calling it "regional fiscal policy" conducted by the ECB, in the global financial crisis of 2008 policy makers welcomed the return of inverstors as this was precisely what they wanted to achieve via acting as a LoLR for banks (Deutsche Bundesbank 2009).

[29] The fact that price stability was achieved in the years 2008 – 2013 is an indication that the euro area would have fallen into deflation if the ECB had listened to those who, since October 2008, had been stating that ECB policies were inflationary (and therefore not in keeping with the ECB's mandate) and called for them to quickly be scaled back or repealed. In the meantime, more than three years have passed, i.e. a period of time which is usually described as "the medium term", and for which the ECB undertook to ensure price stability. There are no signs that any risks to price stability materialized.

was unwilling to issue sovereign bonds at such an interest rate. The situation facing euro area crisis countries from 2010 onward is different, because with rising interest rates investors were less and less inclined to buy bonds, as higher rates were seen as evidence that the issuing entity would be or is insolvent.[30] Demand does not increase for bonds at a lower price (higher rates), but rather declines. In May 2010, Greece could have offered any interest rate and its bonds still would not have been purchased, precisely because the country was ready to acquire debt at almost any interest rate. Any financing of new deficits through the OMT program would therefore represent a direct consequence of the financial crisis, i.e. the inability of the crisis countries to roll-over outstanding debt. However, as already mentioned, there was no financial crisis and no roll-over problem either in 1915/23 or in the 1970s.

Table 1: Government Net lending / borrowing of Crisis Countries, 2007 – 2013

Country	Unit	2007	2008	2009	2010	2011	2012	2013
Greece	% of GDP	-6.8	-9.9	-15.6	-10.8	-9.6	-6.3	-4.1
Ireland	% of GDP	0.1	-7.3	-13-8	-30.5	-13.1	-7.6	-7.5
Italy	% of GDP	-1.6	-2.7	-5.4	-4.3	-3.7	-2.9	-3.2
Portugal	% of GDP	-3.2	-3.7	-10.2	-9.8	-4.4	-6.4	-5.5
Spain	% of GDP	1.9	-4.5	-11.2	-9.7	-9.6	-10.8	-6.7
Greece	EUR bn	-15.1	-23.1	-36.1	-24.1	-20.0	-12.2	-7.5
Ireland	EUR bn	0.1	-13.2	-22.4	-48.3	-21.3	-12.5	-12.6
Italy	EUR bn	-24.7	-42.1	-82.4	-67.3	-58.2	-45.7	-50.5
Portugal	EUR bn	-5.4	-6.4	-17.1	-17.1	-7.5	-10.6	-9.0
Spain	EUR bn	20.2	-48.9	-117.1	-101.4	-100.4	-111.6	-68.3

Source: IMF, WEO Database,October 2013, 2013: estimated figures.

The second reason why a possible financing of budget deficits via the OMT program is unlikely to trigger inflation, as it was the case in the 1920s, refers to the differences in the conduct of fiscal policy in the countries under review. When Germany entered hyperinflation in 1922/1923, the Reichsbank financed the expansion of nominal government spending driven by a political crisis, namely the Ruhr crisis.[31]

In the euro area crisis countries, by contrast, nominal government spending has declined or has seen much slower growth than in the pre-crisis period (Table 2). This is due (though not exclusively, as the case of Spain shows) to the adjustment programs associated with ESM support. From this perspective, it is appropriate that the ECB has made any activation of the OMT dependent on an ESM program,

[30] Of course, this argument echoes the one for the inter-bank and deposit market justifying a central bank’s role as a LoLR (Freixas and Rochet 2008, 243, Deutsche Bundesbank 2009).
[31] On a more general level Bordo (1986, with reference to Capie (1986)) claims that any hyperinflation in the 20th century was associated with situations of extreme social unrest or civil war, i.e. not financial crises.

because ESM conditionalities are meant to enforce the needed adjustment process. At the same time, the proviso that an ESM program is a necessary, but not a sufficient, eligibility requirement ensures that the ECB can decide independently whether to start the program at all or to discontinue with the program if the adjustment is not seen as sufficiently deep by the ECB (Fuest 2013a, 4).

Table 2: General Government Expenditures and Rate of Growth of General Government Expenditures in Crisis Countries, 2007-2013

Country	Unit	2007	2008	2009	2010	2011	2012	2013
Greece	EUR bn	106.0	118.0	124.7	114.3	108.3	97.6	86.3
Ireland	EUR bn	69.5	77.0	78.4	103.4	76.7	69.0	71.2
Italy	EUR bn	740.3	765.5	788.4	782.0	787.0	792.5	797.6
Portugal	EUR bn	75.1	77.0	83.9	89.0	84.4	78.4	80.3
Spain	EUR bn	412.9	450.9	484.8	485.4	480.1	493.7	454.1
Greece	% p.a.	12.3	11.3	5.7	-8.3	-5.2	-9.9	-11.6
Ireland	% p.a.	13.8	10.8	1.8	31.9	-25.8	-9.9	3.2
Italy	% p.a.	2.3	3.4	3.0	-0.8	0.6	0.7	0.6
Portugal	% p.a.	5.2	2.6	8.8	6.1	-5.1	-7.2	2.5
Spain	% p.a.	9.3	9.2	7.5	0.1	-1.1	2.8	-8.0

Source: IMF, WEO Database, October 2013,2013: estimated figures, author's calculations.

The second argument which is used to reject a LoLR role for governments, while accepting it for banks, based on the supposed inflationary risks of purchasing government bonds, is closely related to this last observation. Some critics of the LoLR role of the ECB for euro area governments point to the risk that the ECB would not be able to withstand the political pressure to continue with purchases of sovereign bonds even should they begin to have an inflationary effect (Bundesbank 2012, 12f.). In this regard they point to an inconsistency within the program design which runs as follows: The ECB will not be able to terminate the OMT program in case of insufficient adjustment efforts by a member state because this is likely to trigger the very crisis which the OMT program is trying to prevent (Konrad 2013, 438).

The first risk is of a fundamental kind: The ECB is not trusted to keep to its mandate. However, by being of such a fundamental nature, the objection can be raised at any time, i.e. it is again independent of crisis management policies. It applies whenever economic developments in one member state – or in a group of member states – appear to justify a different monetary policy than that of the euro area as a whole. It can be argued, for example, that the only episode of "inflation" in the history of the euro to date, in the period 2006-2008 when the inflation rate rose to 4% p.a. in June and July 2008, was a consequence above all of the delayed and hesitant interest rate increases in the previous years, and that this interest rate policy was primarily

reflecting the recession in euro area core countries, namely Germany and France. The example shows that inflation can always arise when a central bank, in this case the ECB, takes interest rate decisions – for whatever reason – that in the end are not compatible with price stability. Thus, this fear is not an argument against the OMT program, but rather an argument against European monetary union itself.[32]

The second argument is implicitly based on the assumption that there will be a conflict between financial and price stability that confronts the ECB with the dilemma of having to choose between the two goals. Regardless of how probable one considers it to be that this dilemma will arise,[33] exactly the same dilemma applies with regard to the ECB's LoLR role for banks. Here as well, banks – confident that they will have access to unlimited central bank credit – can engage in unchecked lending and thus create inflation.[34] The argument thus confirms the undisputed fact that in the end any central bank that aims at maintaining price stability depends on the sound conduct of fiscal and financial market policy, which means preventing fiscal and financial dominance. No central bank has the "magic bullet" in its arsenal with which it can achieve price stability, financial stability and growth at all times (Orphanides 2013).

Overall, we find that the argument according to which a LoLR for governments necessarily leads to inflation, while such concerns are negligible or non-existent when a central bank focuses on the LoLR role for banks only, fails to convince. Any type of LoLR will trigger inflation if ultimately financial market and fiscal policies are unable to ensure the solvency of the banks operating in the financial system and the solvency of countries of which the monetary union is composed. However, if this is assumed, then it is not the ECB's role as a LoLR that should be rejected but the euro and European Monetary Union as a whole. For ultimately, a "sufficiently developed state" (Richter 2013) that is able to ensure the solvency of banks and governments is always

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[32] As such, this fear is not new, since it had been put forward by many German economists way before the euro area was established: "Despite the fact that it is largely independent, the European Central Bank will not be able to enforce price stability in Europe because, due to the differing interests of decision-makers in the various countries, there will not be a strong enough incentive for it to want to do so." (Ohr and Schäfer 1992)

[33] This dilemma assumes a situation in which inflation rises although financial markets – here: sovereign bond markets – are still operating in crisis mode. The author does not know of any example in modern economic history in which this situation was observed when the financial crisis encompassed (primarily) assets which were denominated in the domestic currency and the domestic currency had a flexible exchange rate vis-à-vis other currencies. By contrast, things are different – and were different in the various emerging market crises of the 1980s and 1990s – when banks and governments whose solvency was put into doubt – borrowed in foreign currency (original sin) in the pre-crisis period, or the country was running a fixed exchange rate regime. In such cases, investors do not want to exchange the assets which they now regard as uncertain for local base money, but rather for hard currency, usually U.S. dollars. Thus, expansion of the domestic base money leads to inflation because the central bank – in its response to crisis – supplies an asset the original investors do not want to hold (see the discussion in Chang and Velasco 2000 and Obstfeld et al. 2010).

[34] Weidmann (2013e) explicity refers to the risk of an emerging "financial dominance".

required to allow an independent central bank to successfully fulfill its mandate of ensuring price stability.[35]

6. Summary and Conclusions

The ECB's role as a LoLR for governments has been severely criticized. Much of this criticism is based on economic reasoning, grounded in the Gernman ordo-liberal tradition, that in principle rejects the LoLR role of central banks throughout, i.e. not only for governments, but for banks as well. Thus, if the economic reasoning is valid, then serving as a LoLR for banks is as objectionable as serving as a LoLR for governments. By contrast, if this economic reasoning is rejected, serving as a LoLR for governments addresses the same monetary policy challenge – a disruption of the monetary policy transmission mechanism – as acting as a LoLR for banks. However, there are arguments which might lead to the conclusion that a LoLR role for banks is acceptable while a LoLR role for governments should be rejected. In this paper the validity of four of these arguments has been discussed. We find that none is convincing:

1) The objection that the ECB lacks a single European government, or an appropriate fiscal backstop, as a partner in its LoLR activities for euro area governments is refuted by the ESM to which the OMT is explicitly linked.
2) The argument that a LoLR role for banks is appropriate because it is a short-term measure, while the LoLR role for governments is inappropriate given the length of the euro crisis, does not take into account that, with the start of the OMT program the ECB (as a LoLR for governments) achieved a comparable impact on conditions in sovereign bond markets to the ECB as a LoLR for banks on conditions in the interbank market, within a very short period of time.
3) Reference to the example of the United States as a monetary union with a no-bailout clause and no LoLR function for the individual states is not convincing because the US is a fiscal and banking union which does not (yet) exist in the euro area.
4) A LoLR for governments, as designed via the OMT program, does not constitute inflationary financing of government expenditures of the kind carried out by the Reichsbank in the early 1920s. The risk of inflation does not arise from an expansion of base money per se, but rather from an expansion of base money for which there is no corresponding demand on the part of the private sector. The possibility that the ECB might adopt an inflationary course

[35] In this context, the comparison between the euro area and the ruble zone, as put forth by Mayer (2103b), is informative. For although there is almost no single relevant variable, whether in economic terms (development of output, development of inflation, depth of the financial system, financial crisis, economic system etc.) or in monetary terms (growth in the money supply, money multiplier and velocity of circulation, (real) interest rates, etc.) which would suggest such a comparison, the ruble zone in the period 1992/1993 was a "state" with the above-mentioned characteristics: unwilling and unable to ensure the solvency of its sub-states and banks.

therefore exists independently of performing the roles of LoLR for banks and / or governments as it is solely reflected in an inappropriate monetary policy stance with regard to the level of interest rates. Thus, rejecting the ECB's role as a LoLR for governments does not reduce the risk of inflation in the future.

Overall it can be concluded that, instead of convincingly rejecting a LoLR for euro area governments, the analysis of the four arguments considered lead to the finding that the ECB acting as LoLR for governments needs a much stronger partner at the level of the euro area as a whole in order to be successful in the medium to long-term. This means that decisive steps toward fiscal and banking union are absolutely necessary in order to stabilize the euro area in the medium and long term (Buiter and Rahbari 2012, Obstfeld 2013). Under the current governance structure of the euro area both are necessary: The ESM and steps towards fiscal and banking union to limit the risks of a permanent bailout, which would lead to persistent slow growth, and ultimately inflation; and the ECB as a LoLR for banks and governments to mitigate the risk of a return of the euro crisis.

Literature

Aizenman, J. (2012). ´US Banking over two centuries: Lessons for the Eurozone crisis´, available at: http://www.voxeu.org/article/us-banking-over-two-centuries-lessons-eurozone-crisis

Ang, A. and F.A. Longstaff (2011). ´Systemic Sovereign Credit Risk: Lessons from the U.S. and Europe´, NBER Working Paper No. 16982

Bagehot, W. (1873). ´Lombard Street – A Description of the Money Market´, Homewood, IL: Richard D. Irwin (1962 Edition)

Barbier, H. (2008). ´Für die Haftung´, *Frankfurter Allgemeine Zeitung*, 17th October, No. 243, 13

Becker, A. (2013). ´European 'shadow state' faces growing resistance´, available at: http://www.dw.de/european-shadow-state-faces-growing-resistance/a-16720690

Bernanke, B. and H. James (1991). ´The Gold Standard, Deflation, and Financial Crisis in the Great Depression: An International Comparison´, in R.G. Hubbard (ed.), *Financial Markets and Financial Crises*, University of Chicago Press, Chicago, 33-68

Bernanke, B.S. (2013). ´The Economic Outlook´, Testimony before the Joint Economic Committee, U.S. Congress, Washington D.C., available at: http://www.federalreserve.gov/newsevents/testimony/bernanke20130522a.htm

Bernanke, B. S. (2014). ´Central Banking After the Great Recession: Lessons Learned and Challenges Ahead´, A Discussion with Federal Reserve Chairman Ben Bernanke on the Fed's 100th Anniversary, The Brookings Institution, Excerpt, available at: http://www.brookings.edu/~/media/events/2014/1/16%20central%20banking%20great%20recession/20140116_bernanke_remarks_transcript.pdf

Bertola, G., Driffill, J., James, H., Sinn, H.-W., Sturm, J.E. und Á. Valentinyi (2013). ´EEAG Report on the European Economy 2013 - Rebalancing Europe´, CESifo Group Munich, Munich.

Bordo, M. (1986). ´Explorations in Monetary History: A Survey of the Literature´, *Explorations in Economic History*, 23, 339-415

Bordo, M.D., Jonung, L. and A. Markiewicz (2013). ´A Fiscal Union for the Euro: Some Lessons from History´, *CESifo Economic Studies*, 59 (3), 449-488

Borio, C. (2012). ´The financial cycle and macroeconomics: What have we learnt? ´, BIS Working Papers No. 395, Basle

Buiter, W. and E. Rahbari (2012). ´The European Central Bank as Lender of Last Resort for Sovereigns in the Eurozone´, *Journal of Common Market Studies*, 50, 6-35

BVerfG (2014). ´2 BvR 2728/13 vom 14.01.2014, Absatz-Nr. (1 - 105) ´, available at: http://www.bverfg.de/entscheidungen/rs20140114_2bvr272813.html

Cagan, P. (1956). ´The Monetary Dynamics of Hyperinflation´ in: Friedman, M. (ed.) *Studies in the Quantity Theory of Money*. University of Chicago Press, Chicago, 25-117

Calomiris, C. (1993). ´Financial Factors in the Great Depression´, *The Journal of Economic Perspectives*, 7(2), 61-85

Calomiris, C.W. and G. Gorton (1991). ´The Origins of Banking Panics´, in R.G. Hubbard (ed.). *Financial Markets and Financial Crises*, University of Chicago Press, Chicago, 109-173

Capie, F. (1986). ´Conditions in which Hyperinflation has appeared´, *Carnegie Rochester Conference Series on Public Policy*, 24, 115-168.

Cohen-Setton, J. (2011), ´The ECB as a lender of last resort to sovereigns´, Bruegel Economic Blogs Review, 25 November, available at: http://www.bruegel.org/blog/detail/article/289-the-ecb-as-a-lender-of-last-resort-to-sovereigns/

Cole, H.L. and T.J. Kehoe (1996). ´A self-fulfilling model of Mexico's 1994-1995 debt crisis´, *Journal of International Economics*, 41, 309-330

De Grauwe, P (2011a). ´The Governance of a Fragile Eurozone´, Economic Policy, CEPS Working Documents

De Grauwe, P. (2011b). ´The European Central Bank as a lender of last resort´, 18 August, available at: http://www.voxeu.org/article/european-central-bank-lender-last-resort

De Grauwe, P. (2013). ´The European Central Bank as Lender of Last Resort in the Government Bond Markets´, *CESifo Economic Studies*, 59(3), 520-535.

DeLong. J.B. (1998). ´Fiscal Policy in the Shadow of the Great Depression´, in M.D. Bordo, C. Goldin and E.N. White (eds.), *The Defining Moment: The Great Depression and the American Economy in the Twentieth Century*, University of Chicago Press, Chicago, 67-86

Deutsche Bundesbank (1976). ´Deutsches Geld- und Bankwesen in Zahlen 1876-1975´, Fritz Knapp GmbH, Frankfurt am Main

Deutsche Bundesbank (1990). ´Statement by the Deutsche Bundesbank on the establishment of an Economic and Monetary Union in Europe´, Monthly Report of the Deutsche Bundesbank, October 1990, 40 – 44

Deutsche Bundesbank (2009). ´Interaction between the Eurosystem's nonstandard monetary policy measures and activity in the interbank money market during the crisis´, in Deutsche Bundesbank, *Financial Stability Review 2009*, 87–99

Deutsche Bundesbank (2012). ´Stellungnahme gegenüber dem Bundesverfassungsgericht zu den Verfahren mit den Az. 2 BvR 1390/12, 2 BvR 1421/12, 2 BvR 1439/12, 2 BvR 1824/12, 2 BvE 6/12´ *[Statement to the Federal German Constitutional Court in the Proceedings with Reference Nos. 2 BvR 1390/12, 2 BvR 1421/12, 2 BvR 1439/12, 2 BvR 1824/12, 2 BvE 6/12]*, available at: http://www.handelsblatt.com/downloads/8124832/1/stellungnahme-bundesbank_handelsblatt-online.pdf

Diamond, D.W. and P.H. Dybvig (1983). ´Bank Runs, Deposit Insurance, and Liquidity´, *Journal of Political Economy*, 91(3), 401-419

Draghi, M. (2012). ´Verbatim of the remarks at the Global Investment Conference in London´, available at: http://www.ecb.int/press/key/date/2012/html/sp120726.en.html#

Eichengreen, B. (2010). ´The Euro: love it or leave it?´, available at: http://www.voxeu.org/article/eurozone-breakup-would-trigger-mother-all-financial-crises

Eucken (1990). ´Grundsätze der Wirtschaftspolitik´ [Fundamental Principles of Economic Policy], 6th edition, J.C.B. Mohr (Paul Siebeck), Tübingen

Feld, L.P, Haucap, J. Möschel, W., Wieland, V. and B.U. Wagner (2012). ´Wie viel Koordinierung braucht Europa?´ *[How much coordination does Europe need?]*, available at: http://www.stiftung-marktwirtschaft.de/uploads/tx_ttproducts/datasheet/KK_55_Europa_Koordinierung_2012.pdf

Feld, L.P. (2012). ´Europa in der Welt von heute: Wilhelm Röpke und die Zukunft der Europäischen Währungsunion´ *[Europe in today`s world: Wilhelm Röpke and the future of European Monetary Union]*, Freiburger Diskussionspapiere zur Ordnungsökonomik No. 12/2, available at: http://www.econstor.eu/dspace/handle/10419/67061?langselector=en

FMSA (2013). ´Historischer Überblick über die Maßnahmen des SoFFin´ *[Historical overview about the measures taken by SoFFin]*, available at: http://www.fmsa.de/export/sites/standard/downloads/sonstige/20130612_Massnahmen_der_FMSA_historisch_deutsch.pdf

Franz, W., Fuest, C., Hellwig, M. and H.-W. Sinn (2010). ´A Euro Rescue Plan´, CESifo Forum, 11(2), 101-104

Freixas, X. and J.-C. Rochet (2008). ´Microeconomics of Banking´, 2nd edition, The MIT Press, Cambridge

Friedman, M. and A. Schwartz (1965). ´Why Was Monetary Policy So Inept?´, in M. Friedman and A. Schwartz, *The Great Contraction 1929-33*, Princeton University Press, Princeton, 111-12

Fuest, C. (2012). ´Wir brauchen eine Bankenunion´ *[We need a banking union]*, available at: http://www.faz.net/aktuell/wirtschaft/europas-schuldenkrise/schuldenkrise-wir-brauchen-eine-banksunion-11776758.html

Fuest, C. (2013). ´Stellungnahme gegenüber dem Bundesverfassungsgericht anlässlich der mündlichen Verhandlung zu den Verfahren 2 BvR 1390/12, 2 BvR 1421/12, 2 BvR 1438/12, 2 BvR 1439/12, 2 BvR 1440/12, 2 BvR 1824/12 und 2 BvR 6/12´ *[Statement to the Federal German Constitutional Court During the Oral Hearing in the Proceedings with Reference Nos. 2 BvR 1390/12, 2 BvR 1421/12, 2 BvR 1438/12, 2 BvR 1439/12, 2 BvR 1440/12, 2 BvR 1824/12 and 2 BvR 6/12]*, available at: ftp://ftp.zew.de/pub/zew-docs/stellungnahmen/Stellungnahme_BVerfG_Fuest_Juni_2013.pdf

Fuest, C. and A. Peichl (2012). ´European Fiscal Union: What Is It? Does It Work? And Are There Really ‘No Alternatives’?´, CESifo Forum, 13(1), 3-9

Giavazzi, F. and M. Pagano (1990). ´Confidence Crises and Public Debt Management´, in R. Dornbusch and M. Draghi (eds.), *Public Debt*

Management: Theory and History, Cambridge University Press, Cambridge, 125-143

Giavazzi, F., Portes, R., Weder di Mauro, B. and C. Wyplosz (2013). ´The wisdom of Karlsruhe: The OMT court case should be dismissed´, available at: http://www.voxeu.org/article/wisdom-karlsruhe-omt-court-case-should-be-dismissed

Goodhart, C.A.E. (1988). *´The Evolution of Central Banks´*, The MIT Press, Cambridge

Goodhart, C.A.E. (1998). ´The two concepts of money: implications for the analysis of optimal currency areas´, *European Journal of Political Economy*, 14, 407–432

Goodhart, C.A.E. (1999). ´Myths about the LOLR´, *International Finance*, 2, 339-360

Gros, D. (2012). ´Banking union: If Ireland were Nevada´, available at: http://www.voxeu.org/article/banking-union-if-ireland-were-nevada

Gros, D. and D. Schoenmaker (2012). ´The case for euro deposit insurance´, available at: http://www.voxeu.org/article/case-euro-deposit-insurance

Henning, C.R. and M. Kessler (2012). ´Fiscal Federalism: US History for Architects of Europe's Fiscal Union´, Bruegel Essay and Lecture Series

Hetzel, R.L. (2013). ´ECB Monetary Policy in the Recession: A New Keynesian (Old Monetarist) Critique´, Federal Reserve Bank of Richmond Working Paper No. 13-07

Holfterich, C.-L. (1986). ´The German Inflation 1914-1923´, Walter der Gruyter & Co, Berlin, New York

Hoshi, T. and A. L. Kashyap (2013). ´Will the U.S. and Europe Avoid a Lost Decade? Lessons from Japan's Post Crisis Experience?´ Paper presented at the 14th Jacques Polak Annual Research Conference Hosted by the International Monetary Fund Washington, DC─November 7–8, 2013, available at: http://209.133.61.144/external/np/res/seminars/2013/arc/pdf/hoshi.pdf

Illing, G. (2012). 'Options for the Euro Area´, Paper prepared for a Workshop of the Austrian Research Association (Österreichische Forschungsgemeinschaft) titled "The Financial Crises of the 21st Century" 18. - 19. 10. 2012, available at: http://www.sfm.vwl.uni-muenchen.de/aktuelles/euro-area/illing-euro-area.pdf

Illing, G., Jauch, S. and M. Zabel (2012). ´Die Diskussion um den Euro – Endogene Risiken und multiple Gleichgewichte´ [The discussion about the euro – endogenous risks and multilpe equilibria], *Leviathan*, 40(2), 156-172

International Monetary Fund (2013). ´Euro Area Policies´, 2013 Article IV Consultation, IMF Country Report No. 13/231

Irwin, N. (2013). ´Three days that saved the world financial system´, available at: http://www.washingtonpost.com/business/three-days-that-saved-the-world-financial-system/2013/03/28/d5b9a38c-94ef-11e2-b6f0-a5150a247b6a_print.html

Issing, O. (2011). ´Slithering to the wrong kind of union´, The Financial Times, 8 August, available at: http://www.ft.com/intl/cms/s/0/c4159b34-c1a8-11e0-acb3-00144feabdc0.html

Issing, O. (2013a). ´Wohin steuert die Europäische Währungsunion? ´ [Where is European Monetary Union Heading For?], Frankfurter Allgemeine Zeitung, 5 July 2013.

Issing, O. (2013b). ´Challenges for Monetary Policy´. Speech delivered at the DIW Conference, 2 September 2013, available at: http://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.426881.de/issing_omt_konferenz_2013.pdf

James, H. (2002). ´The Creation of a World Central Bank? The Early Years of the Bank for International Settlements´, in H. James (ed.), *The Interwar Depression in an International Context*, R. Oldenbourg Verlag, München, 159 – 170

James, H. (2011). ´Making a central bank without a state´, in G. Wood, T.C. Mills and N. Crafts (eds,), *Monetary and banking history: essays in honour of Forrest Capie*, Routledge, London, 235-253

James, J.A., McAndrews, J. and D.F. Weimann (2013). ´Banking Panics, the 'Derangement' of the Domestic Exchanges, and the Origins of Central Banking in the United States, 1893 to 1914´, available at: http://www.frbatlanta.org/documents/news/conferences/13monetary_financial_history/James-McAndrews-Weiman.pdf

Keister, T. and J. McAndrews (2009). ´Why Are Banks Holding So Many Excess Reserves? ´, Federal Reserve Bank of New York Staff Report No. 380, July, available at: http://www.newyorkfed.org/research/staff_reports/sr380.pdf

Konrad, K.A. (2013). ´Haftungsrisiken und Fehlanreize aus ESM und OMT-Programm´ *[Liability Risks and Negative Incentives arising from the ESM and the OMT Program]*, *Wirtschaftsdienst*, 93(7), 431–439

Krämer, W. (2012), ´EU banking crisis´, http://www.statistik.tu-dortmund.de/kraemer-eng.html#c6323, accessed 28 December 2013.

Krugman, P. (2011). ´Can Europe be saved?´, available at: http://www.nytimes.com/2011/01/16/magazine/16Europe-t.html?pagewanted=all&_r=0

Fuest (2013b). ´In der Euro-Zone droht eine Zombifizierung´ *[Zombification threatens the euro zone]*, available at: http://www.spiegel.de/wirtschaft/soziales/zew-chef-clemens-fuest-warnt-vor-dauerkrise-in-europa-a-901759.html

Madigan, B.F. (2009). ´Bagehot's Dictum in Practice: Formulating and Implementing Policies to Combat the Financial Crisis´, Speech at the Federal Reserve Bank of Kansas City's Annual Economic Symposium, Jackson Hole, Wyoming

Mayer, T. (2013a). ´Die Ökonomen im Elfenbeinturm: ratlos – Eine österreichische Antwort auf die Krise der modernen Makroökonomik und Finanztheorie´ *[Economists in the Ivory Tower: Clueless – An Austrian Response to the Crisis in Modern Macroeconomics and Finance Theory]*, Freiburger

Diskussionspapiere zur Ordnungsökonomik *[Freiburger Discussion Papers in Ordo-liberal Economics]* No. 13/1

Mayer, T. (2013b), ´Krisen der Geldsysteme: Historische und aktuelle Entwicklungen´ *[Crises of Monetary Systems: Historical and Current Developments*], 22. März 2013, available at: http://web.apb-tutzing.de/apb/cms/fileadmin/Tagungsmaterialien/2013/1._Quartal/Mayer_Thomas_Krisen_der_Geldsysteme.pdf

O`Callaghan, P. (2012). ´Collective memory in law and policy: the problem of the sovereign debt crisis´, *Legal Studies*, 32(4), 642–660

O'Rourke, K.H. and A.M. Taylor (2013). ´Cross of Euros´, *The Journal of Economic Perspectives*, 27(3), 167-191

Obstfeld, M. (2013). ´Finance at Center Stage: Some Lessons of the Euro Crisis´, European Economy – Economic Papers 493, Brussels

Obstfeld, M., Shambaugh, J.C. and A.M. Taylor (2010). ´Financial Stability, the Trilemma, and International Reserves´, *American Economic Journal: Macroeconomics*, 2(2), 57-94

Ohr, R. and W. Schäfer (1992). ´Erstes Manifest gegen den Vertrag von Maastricht, Von 62 Professoren unterzeichnet´ *[First Manifest Against the Maastricht Treaty, Signed by 62 Professors]* , available at: www.uni-goettingen.de

Oliver, H.M. (1960). ´German Neoliberalism´, *Quarterly Journal of Economics*, 74(1), 117-149

Orphanides, A. (2013). ´Is Monetary Policy Overburdened?´, Paper prepared for *Navigating the Great Recession: what role for monetary policy*? Twelfth BIS Annual Conference, Lucerne, 20-21 June, available at: http://www.bis.org/events/conf130620/orphanides.pdf

Pisani-Ferry, J. and G.B. Wolff (2012). ´The fiscal implications of a banking union´, Policy Briefs 748, Bruegel

Richter, R. (2013). ´Geldwertsicherung im internationalen Goldstandard und in einer Währungsunion von Staaten mit Papierstandard aus institutionenökonomischer Sicht´ *[Monetary Stability under the International Gold Standard and in a Monetary Union of Countries under a Paper Standard – a New Institutional Economics Perspective]*, *Perspektiven der Wirtschaftspolitik*, 14(1-2), 132–149

Rochet, J.C. and X. Vives (2004). ´Coordination Failures and the Lender of Last Resort: Was Bagehot Right After All?´, *Journal of the European Economic Association*, 2, 1116-1147

Schmieding, H. (2013). ´Euroscepticism at its worst´, available at: http://blog.berenberg.de/euroscepticism-at-its-worst/

Schwartz, A.J. (1986). ´Real and Pseudo-Financial Crises´, in F. Capie and G. E. Woods (eds.), *Financial Crises and the World Banking System*, St. Martin's Press, New York

Sheard, P. (2013). ´Repeat After Me: Banks Cannot And Do Not "Lend Out" Reserves´, Standard & Poor's Ratings Direct, 13 August, available at:

http://www.standardandpoors.com/spf/upload/Ratings_US/Repeat_After_Me_8_14_13.pdf

Sims, C.A. (2013). ´Gaps in the Institutional Structure of the Euro Area´, Griswold Center for Economic Policy Studies Working Paper No. 233, May, available at: http://www.princeton.edu/gceps/workingpapers/233sims.pdf

Sinn, H.-W. (2013). ´Verantwortung der Staaten und Notenbanken in der Eurokrise´ [*Responsibilities of Governments and Central Banks in the Euro Crisis*], available at: http://www.cesifo-group.de/de/ifoHome/policy/Sinns-Corner/Sinn-Juni2013-Verantwortung-in-der-Eurokrise.html

Sinn, H.-W., Fuest, C., Hellwig, M. and W. Franz (2010). ´Zehn Regeln zur Rettung des Euro´ [*Ten Rules to save the Euro*], available at: http://www.cesifo-group.de/de/ifoHome/policy/Staff-Comments-in-the-Media/Press-articles-by-staff/Archive/Eigene-Artikel-2010/medienecho_13183311_ifostimme-faz-18-06-10.html

Stark, J. (2009). ´Krisenbewältigung: Markt versus Staat´ *[Crisis Policies: Markets versus Governments]*, available at: http://www.ecb.int/press/key/date/2009/html/sp090429_1.de.html

Stark, J. (2012), ´Wir befinden uns in einem Teufelskreis´ [*We are in a vicious circle*], Die ZEIT online, 26th March, available at: http://www.zeit.de/wirtschaft/2012-03/juergen-stark-interview

Stark, J. (2013). ´Es gibt keine rote Linie mehr´ *[There Is No Longer a Line That Cannot Be Crossed]*, *Handelsblatt*, 26th July, No. 142, 24-25

Stark, J. (2014). ´Expansive Geldpolitik als Weg aus der Krise? ´ *[Expansionary Monetary Policy – A Path Out of the Crisis?]*, Präsentation beim 27. Leipziger Weltwirtschaftsseminar: Konvergenz versus Divergenz in der Europäischen Union in der Krise, Universität Leipzig *[Presentation held at the World Economic Seminar: Convergence or Divergence in the European Union in Crises Times, University of Leipzig]*, available at: http://www.wifa.uni-leipzig.de/ziw/weltwirtschaftsseminar0.html

Teutul, C. (1962). ´Die Funktion der Deutschen Notenbank bei der Staatsverschuldung in der Zeit von 1875 bis 1945´ *[The Role of the German Central Bank foe Government Debt in the Period 1875 to 1945]*, Ernst-Reuter Gesellschaft: Berlin-Dahlem.

Wallis, J.J., Sylla, R. and A. Grinath (2004). ´Sovereign Debt and Repudiation: The Emerging-Market Debt Crisis in the U.S. 1839-1843´, NBER Working Paper No. 10753

Weber, A. (2009a). ´Geldpolitik in Zeiten der Finanzkrise´ *[Monetary Policy in a Time of Financial Crisis],* available at: http://www.bundesbank.de/Redaktion/DE/Downloads/Presse/Reden/2009/2009_11_03_weber_geldpolitik_%20in_zeiten_der_finanzkrise.pdf?__blob=publicationFile

Weber, A. (2009b). ´Pfandbriefmarkt und Finanzmarktkrise´ *[Covered Bond Markets and Financial Market Crisis]*, available at: http://www.bundesbank.de/Redaktion/DE/Downloads/Presse/Reden/2009/200

9_11_26_weber_pfandbriefmarkt_und_finanzmarktkrise.pdf?__blob=publicationFile

Weber, A. (2010). ´Kaufprogramm birgt erhebliche Risiken´ [*Bond Purchase Program Carries Substantial Risks*], *Börsen-Zeitung*, 11th May, No. 89, 1

Weidmann, J. (2013a). ´Who Calls the Shots? The Problem of Fiscal Dominance´, Speech at the BdF-BBk Macroeconomics and Finance Conference, available at: http://www.bundesbank.de/Redaktion/EN/Reden/2013/2013_05_24_weidmann.html

Weidmann, J. (2013b). ´Eingangserklärung anlässlich der mündlichen Verhandlung im Hauptsacheverfahren ESM/EZB´ *[Opening Statement at the Oral Hearing in the ESM/ECB Principal Proceedings]*, available at: http://www.bundesbank.de/Redaktion/DE/Kurzmeldungen/Stellungnahmen/2013_06_11_esm_ezb.html

Weidmann, J. (2013c). ´Nicht alles ist erlaubt´ [*Not everything is allowed*], available at: http://www.bundesbank.de/Redaktion/DE/Interviews/2013_06_24_weidmann_sueddeutsche.html

Weidmann, J. (2013d). ´Crisis economics – the crisis as a challenge for economists ´, Lecture at the Annual Gala Meeting of the Munich Volkswirte Alumni-Club, available at: http://www.bundesbank.de/Redaktion/EN/Reden/2013/2013_06_13_weidmann.html

Weidmann, J. (2013e). ´What can monetary policy do? ´, Speech at the 2013 *Süddeutsche Zeitung* conference for business leaders, available at: http://www.bundesbank.de/Redaktion/EN/Reden/2013/2013_11_21_weidmann.html

White, L.H. (2008). ´Did Hayek and Robbins Deepen the Great Depression?´, Journal of Money, Credit and Banking, 40(4), 751-768

White, W. (2012). ´Ultra Easy Monetary Policy and the Law of Unintended Consequences´, available at: http://www.dallasfed.org/assets/documents/institute/wpapers/2012/0126.pdf

Winkler, A. (2011). ´The joint production of confidence: lessons from nineteenth-century US commercial banks for twenty-first-century Euro area governments´, *Financial History Review*, 18(3), 249-276

Winkler, A. (2013a), ´Der lender of last resort vor Gericht *[The Lender of Last Resort in Court]*´, Frankfurt School Working Paper, No. 206, 2013, available at: http://www.frankfurt-school.de/clicnetclm/fileDownload.do?goid=

Field Code Changed

Winkler, A. (2013b), ´Ordnung und Vertrauen – Zentralbank und Staat in der Eurokrise´ *[Order and Confidence – Central Banks and Governments in the Euro Crisis]*, *Perspektiven der Wirtschaftspolitik* 14 (3-4), 198–218

Winkler, A. (2014). ´The lender of last resort in court´, Frankfurt School of Finance & Management Working Paper No. 207, available at: http://www.frankfurt-school.de/clicnetclm/fileDownload.do?goid=000000557420AB4

Wissenschaftlicher Beirat des Bundesministeriums für Wirtschaft und Technologie [*Advisory Council to the Ministry of Economics and Technology*] (2011). ´Überschuldung und Staatsinsolvenz in der Europaischen Union´ [*Overindebtedness and Insolvent Countries in the European Union*], Gutachten 01/11 [*Expert Opinion*], available at: http://www.bmwi.de/BMWi/Redaktion/PDF/Publikationen/Studien/gutachttext-ueberschuldung-staatsinsolvenz-in-der-eu-wissenschaftlicher-beirat,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf