

Innovation in Greece



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Greece needs a strategy for its transition to an Innovation Economy

by Alexander Kritikos

Although Greece is showing initial signs of recovering from its 2008 crash, its economy continues to suffer. It has become clear that the economy will not become prosperous only by the given recommendations of the so called Troika, namely by cutting costs and public expenditures, and by making institutional reforms, as much as these steps are needed. If nothing else changes, the country will have a steady, tourism-based economy supplemented by a food manufacturing base. However, these components will not yield substantial prosperity increases for the Greek society. At the same time the country has a number of unexploited hidden assets, in particular a small number of excellent research institutes and a great number of top researchers, most of them however working abroad. The central problem is the lack of an innovation-oriented industry structure and of a well-functioning innovation system connecting research output with the demand of entrepreneurs and high-tech start-ups in Greece. Greece needs a strategy for a strong capacity building towards the creation of new applied research institutes. If appropriate research networks are developed out of these and if innovative firms result, creating new products with high value-added, the country has the opportunity to transform into an innovation-driven economy.

The reforms and austerity measures the Troika has suggested to the Greek government lead to substantial reductions of the nominal unit labor costs, of the current account deficit, and of the current public deficit.¹ Beyond these initial reform successes, the current economic situation in Greece is devastating; GDP shrank by almost 30 percent in the past six years, the unemployment rate remains above 25%; and youth unemployment can be called only dramatic.²

A raft of policy recommendations were identified and debated, all seeking to help the Greek economy find its way out of the crisis. Institutional reforms, in particular the liberalization of closed professions, further wage reductions, and the privatization of public industries, are meant to help improve the competitiveness of the Greek economy. All recommendations at the same time are implicitly expecting that “the market” will solve the remaining problems. However, six years of recession have made clear that enforcing austerity measures and pushing through desperately needed reforms to the regulatory environment is not enough to create new growth in Greece and transform it into an innovation driven economy similar to other countries in the Eurozone.

Mostly Small Businesses with Low Value Added

An overview of the pre-crisis Greek economic structure (see Table 1) clarifies why Greece is in such deep trouble - see also an earlier DIW Economic Bulletin.³ Most employees even in the manufacturing sector work in firms with less than ten employees, unable to take ad-

¹ Eurostat (2013) Statistics. <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>

² Eurostat (2013) Statistics. <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>

³ Brenke, Karl (2012): Greek Economy Needs Growth Strategy, DIW-Economic Bulletin 3.

Table 1

Share of selected economic activities of gross value added

In percentage and distribution of labor force in the manufacturing sector

	2010			2009	
	Agriculture, forestry and fishing	Manufacturing	Catering and hotel industry	Share of employees in the manufacturing industry in firms with less than 10 employees	Share of employees in the manufacturing industry in firms with more than 50 employees
Greece	3.1	10.0	6.8	46	41
Germany	0.8	20.9	1.6	7	78
Finland	3.0	18.0	1.7	9	75

Quellen: Eurostat (2012); Berechnungen des DIW Berlin.

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In Greece there are mostly small businesses, with shares above average in agriculture and tourism.

vantage of increasing returns to scale. Greece is specialized in agriculture and tourism, with both shares above the EU average and the production of food, beverages and tobacco products is the largest single piece of the already small manufacturing sector in Greece – thus in segments with low value added.⁴ Therefore, Greece has only a low share of tradable goods and services in GDP terms, resulting in a low average export to GDP ratio of about 25 percent. Greece managed to maintain a closed economy, despite having joined the European Union in 1981, revealing its structural problems. An economy of its size, fully integrated in the EU, should have produced much larger export shares over time.

On the positive side, there are also – albeit few – IT businesses in Greece (getting 40% of all R&D investments)⁵ that, along with similarly small scale high tech companies in other areas,⁶ might be the nucleus for economic expansion, but are currently too small to develop sufficiently if only institutional reforms are continued.

At the same time little has been done so far to actively support the Greek Economy. Moreover, the private sector still suffers under the highly inefficient and corrupt public administration. The OECD provides composite indicators for instance of product market regulations (see Table 2). Despite some improvements over the last five years, the indicator reflects the numerous regulations, bureaucratic hurdles and restrictions that Greek entrepreneurs and SMEs face. Greece is one of the most reg-

⁴ See the Report of McKinsey (2012): Greece: 10 years ahead: Defining Greece's new growth model and strategy. Athens.

⁵ Grant J, Ling T, Potoglou D, Culley DM (2011) A rapid review of the Greek research and development system. Rand Europe.

⁶ McKinsey Report (2012), a.a.O.

Table 2

Information on product market regulations

	2008	2013
Greece	2.3	1.8
Netherlands	0.9	0.9
Germany	1.3	1.3
Finland	1.1	1.2
Portugal	1.4	1.3

Source: OECD (2010); OECD (2014).

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Greece is one of the most over-regulated economies in the EU.

ulated economies in the EU,⁷ and each decision to enter the market bears a substantial risk of failure because bureaucratic hurdles can be insurmountable for entrepreneurs.⁸ In this vein, estimates show that bureaucracy costs about 6.8 percent of GDP in Greece, while the EU average is 3.5 percent.⁹

Similarly the World Bank indicator on the “Ease of Doing Business”¹⁰ reports for 2010 that Greece has an over-

⁷ OECD (2008) Product Market Regulation. <http://stats.oecd.org/Index.aspx?QueryId=28994>.

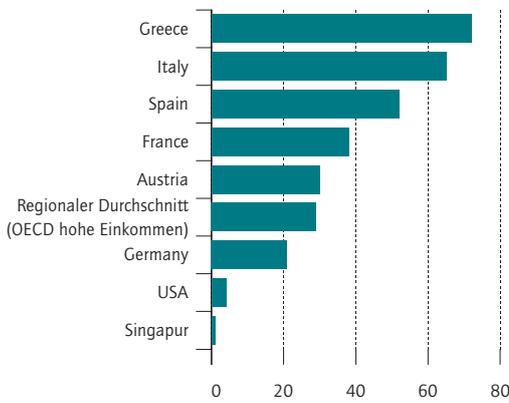
⁸ For a real life example see the start-up story presented in the New York Times from 29.1.2011: What's Broken in Greece? Ask an Entrepreneur. http://www.nytimes.com/2011/01/30/business/30greek.html?pagewanted=all&_r=0

⁹ Drymiotis, A. (2012): The Monster of Bureaucracy and What it Costs, Kathimerini, December 22.

¹⁰ World Bank (2010): <http://www.doingbusiness.org/rankings>.

Figure 1

Ease of Doing Business 2013



Source: World Bank (2014), www.doingbusiness.org/rankings.

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Greece is ranked 72th out of 183 countries, far below any other Euro-zone economy.

regulated legal framework that puts substantial burdens and lengthy procedures on its entrepreneurs and business owners regarding entry regulations, property registration and obtaining or extending licenses or permits, as well as reporting duties, as measured by the Greece ranked 109th out of 183 countries, far below any other Euro-zone economy. Despite reports of incremental improvements in the business climate, the Greece's indicator rose to 72th in 2013 (see Figure 1), it is obvious that the reforms have not been sufficient so far. For instance, foreign direct investment as one critical indicator for the openness and innovative environment of a country still shies away from Greece; this money is allocated to countries with more attractive investment conditions.¹¹

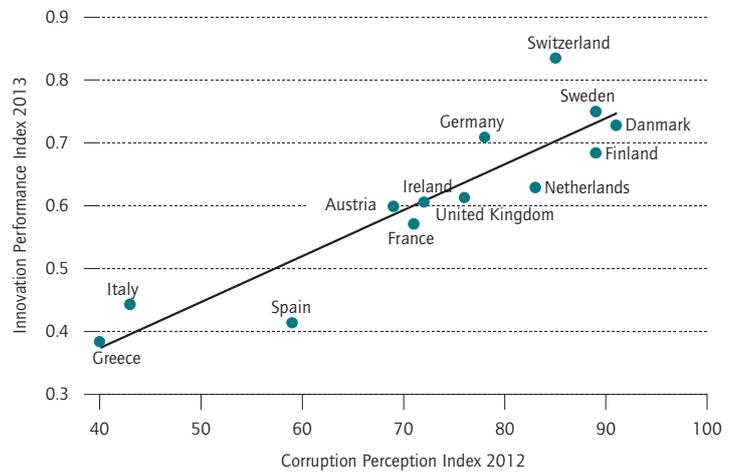
This leads to the last crucial issue: Corruption, the other side of the coin of over-regulation, is part of everyday life, like the bribery of bureaucrats, tax collectors, and judges. Greece is considered to be the most corrupt Euro-zone country (Figure 2). Corruption is not just detrimental to the economy in general, but specifically to innovation and entrepreneurship. Corruption is one reason why researchers and innovators stay away or leave. Recent investigations cannot find evidence of changes in the level of corruption.¹²

¹¹ Evans-Pritchard A (2012) Debt Crisis: Greek Euro Exit Looms Closer as Banks Crumble, The Telegraph, May 16.

¹² See the recent report of Transparency International (2013), which ranked Greece as 80th in the world in its 2013 report, and found no evidence of

Figure 2

Innovation Performance and Corruption



Source: Innovation Union Scoreboard (2013), Transparency International (2013).

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A higher corruption perception index corresponds to a lower level of corruption in a given country. Greece ranks lowest at the Innovations Performance Index* and has the highest level of corruption.

In a nutshell: the analysis makes clear that Greece does not have a cost problem (anymore), but fundamental institutional and structural problems. Cutting costs will make Greece more competitive, but at a wage level below European standards. If Greece is to make growth progress within the group of Euro-zone countries, it must move beyond institutional reforms.

Greece invests only small amounts into R&D

Tourism and agricultural products will remain an important part of Greece's economy, but in these sectors products and services of mostly low value added are produced. It is certainly possible to make the existing products (food and beverages) more innovative and it is also possible to increase the quality of offers towards tourism. The McKinsey (2012) report has shown several ways how this could happen. But tourism and agriculture will not be enough to create sustainable, growing wealth for the whole country. Greece has to tackle the central problem of moving up on the value-added scale. The key to such transformation is developing an innovation-orient-

improvement. For further information see the Corruption Perception Index. Online: <http://www.transparency.org/cpi2013/results>.

ed industry structure and a well-functioning innovation system. And we should not forget that Greece is part of the Euro-currency, a group of countries driven by innovation, including Finland, the Netherlands, Germany, and France, but also Belgium or Austria. These Eurozone economies invest around 3% of their GDP into R&D, thus into their innovation systems. Their major aims are to finance excellent basic research institutions, to make sure that there are constant links and flowing transitions from the outcomes of basic research to publicly financed applied research, and to support stepwise spillovers from ideas to innovative products, which need proof of concept, market demonstrations and commercialization.¹³ What seems even more important: many other Eurozone countries have agreed on a political consent that these investments are of crucial importance no matter which party is in control. The budget is set and the scientists are given wide latitude to do their work. As a result, their economies are driven by innovation and continual refinement, with new products and technologies regularly introduced. They are successful in the global markets because of their new technologies and not because of their low unit wage cost.¹⁴

The Greek economy does not. Its investments into R&D amount to 0.67% of GDP, less than any other Eurozone economy and far below the EU average. In addition, private R&D investments make up less than 0.2% of GDP. Sweden, at the other end of the scale, allocates 3 percent of GDP to private R&D.¹⁵ Research networks barely exist in Greece and collaboration with industry is poor. Also, when it comes to abilities of handing launches of new products, Greece again finds herself at the bottom of rankings on management practice scores.¹⁶ No wonder that in the “innovation performance index” prepared by the European Commission, Greece ranks far below any other Eurozone country. (see Figure 2).¹⁷

13 See for instance Nelson, R.R. (1993): *National Innovation Systems: A Comparative Analysis*, Oxford Univ. Press, Oxford.

14 Ample research demonstrates why it is worth developing an innovation friendly environment with support for innovative firms. (See Aghion, P., Howitt P. (1992): *A Model of Growth through Creative Destruction*, *Econometrica* 60, 323-51.)

15 Eurostat (2012): <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>.

16 See Bloom, N., Genakos, C., Sadun, R., van Reenen, J. (2012): *Management Practices across Firms and Countries*. *Academy of Management Perspectives* 26, 12-33. They have developed a measure for good management practices and have presented a ranking on the quality of management practices differentiated for countries.

17 Innovation Union Scoreboard (2014): <http://ec.europa.eu/enterprise/policies/innovation/facts-figures-analysis/innovation-scoreboard/>.

Greece is not making use of its hidden assets

Overall this picture does not seem to be encouraging for the vision of an innovation driven economy. However, there are some hidden assets in Greece which have been substantially underappreciated in the analysis of its economic prospects. The first asset is the small number of mostly basic research institutes that produce considerable research output.¹⁸ A second hidden asset is that there is a huge number of top Greek scientists. The share of top Greek researchers among all researchers in the world is above 3% while the Greek population among the world population is only 0.2%.¹⁹ However, Greece is “exporting” 85% of these top scientists, more than any other Eurozone country, to research institutions outside of Greece, to other European Member States and even more of them to the US. Similarly, when focusing on ERC grants (the most competitive research grant of the European Research Council) which is another indicator for research excellence, and averaging Greek researchers (in Greece and in Europe) over the Greek population we observe that the ratio of grants to the population is comparable to innovation economies like Finland, Germany, or Great Britain and better than the ratio for Spanish, French or Italian researchers (see Figure 3).²⁰ This holds even without taking account of the majority of Greek Diaspora scientists working at institutions outside the EU. If this “brain power” could be unleashed within Greece, the country could turn more quickly into an innovation driven economy.

Third, Greece also has a few innovative companies – a large share of them in the IT business - that have remained in Greece. These firms do sporadically work with the existing research institutes, but are not clustered and co-located in the same area, despite the obvious potential for mutually beneficial cooperation. Some of them have developed new ideas that are on the cusp of being turned into marketable products.²¹ These firms have remained in Greece despite the adverse innovation environment.

18 Grant et al. (2011), a.a.O.

19 See the study of John Ioannidis „The Best Greek Scientists Exiled from Greece” (2014); <http://greece.greekreporter.com/2014/08/01/the-best-greek-scientists-exiled-from-greece/>

20 Also among ERC Grants 45% of the approvals have been allocated to Greeks in Greece and 55% to Greeks in other EU member states, see Ben Herrmann und Alexander S. Kritikos (2013): *Growing out of the crisis: hidden assets to Greece's transition to an innovation economy*, *IZA Journal of European Labor Studies* 2013, 2:14, <http://www.izajournals.com/content/2/1/14>.

21 Tsiros G (2013) *Greece innovates*, joint publication by Eurobank Greece and SEV. Athens.

This brings us to the fourth “hidden asset” of Greece: Its attractiveness in terms of climate and quality of life. In an increasingly global race for the best talents, life quality outside labs turns into a crucial success factor. Labs, researchers, patent lawyers and venture capital can move easily, while climate, landscape and historical heritage cannot. Some outstanding research universities in northern Europe and the northern US have already experienced the problem of competing against universities in places of higher quality of life, like California, Australia, and Israel. Europe so far does not dispose of a “global attractor” where world-class academic research is matched by locations with attractive climate and quality of life. In this respect Greece has a unique comparative advantage to most EU members and could make a significant contribution to Europe’s collective problem of lacking the combination of places with internationally competitive employment conditions and attractive life quality. If quality of life is matched with excellent research and public administration, Greece could become an attractor not only for tourists but also for talents.

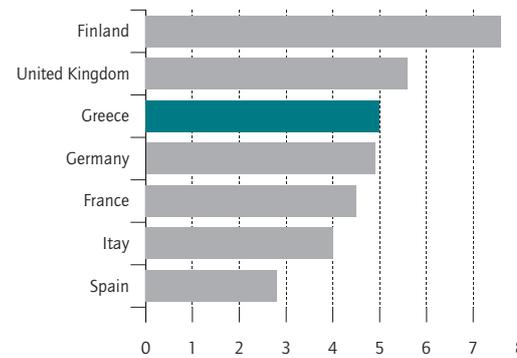
However, drawing these arguments together, these hidden assets are currently almost not used. Instead, given the high regulatory burden and the unfriendly environment toward innovative companies in Greece, there are only a scattered number of high-tech start-ups and no knowledge transferring institutions or applied research connecting the existing basic research institutes with the potential of later exploitation of their fundamental findings. And instead of spin-offs from universities and networks between researchers, institutes work rather in an isolated way with the majority of their top researchers leaving the country, while it is still kind of taboo in the Greek society to turn research results into business ideas.

An Agenda for Innovation in Greece

Several factors are required to design the transformation to an innovation-driven economy. To attract, train and retain talented people and to give researchers, entrepreneurs and managers a fitting structure enabling them to make their specific contributions within an innovation chain, economies need appropriately developed innovation systems. These consist of high quality schools, universities and independent research institutes, as well as professional education systems and excellent research within the public sector. It further needs a functioning financial sector, informal and formal institutions, as well as non-exploitative networks and locally and thematically organized clusters. Last but not least, it also needs a suitable regulatory environment that facilitates internal markets open to new products and inter-

Figure 3

Average Ratio of ERC Grants of researchers of a certain country in relation to the country's population



Quelle: Herrmann und Kritikos (2013).

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The ratio of Greek top researchers to the Greek population is similar to other innovation driven economies; only the majority of top Greek researchers is using the grants outside of Greece.

national competition. In the center of these approaches is thus the exchange and knowledge transfer between the world of research and the world of business, making new products out of research ideas.

A good starting point is that Greece does not have to build an innovation system from scratch. If political decision makers would start developing a strategy for the extension of the Greek innovation system to provide Greek talents with the necessary support and to attract talents from other parts of the world to Greece, they can rely on existing research institutes and entrepreneurs willing to venture innovative firms. The first and foremost need in such a strategy is to close the gap in the innovation chain of Greece, thus between basic research institutes and innovative businesses, by making substantial investments into publicly financed research and into the capacity building of new research institutes, and by clustering them around the existing research institutes. Further, institutions which create networks and clusters, protect (intellectual) property rights, and streamline bureaucracy will allow Greek entrepreneurs to introduce new marketable products or processes in Greece instead of in other countries. Related to the systemic and institutional factors of an innovation system, and the status quo of these factors in Greece, the following steps are recommended:²²

²² For a discussion of the policy measures, see Herrmann und Kritikos (2013).

Establish and develop new research institutes

Given the specialization of the existing research institutes and universities on the one hand, and the traditional (agriculture and tourism) and modern (IT, pharmacology, energy, nanotechnology) sectors on the other hand, the research capacities need to be substantially extended with a strong focus on creating spatially bounded knowledge spillover. More specifically: a substantial number of new research institutes with a strong focus on applied research need to be created, developed and clustered in a way that they close the gap in the innovation chain. Given that such a strategy needs a strong increase of public investments and given the current state of the Greek national budget, the European Commission provides in the Research Framework Programme Horizon 2020 and with the structural funds and the smart specialization strategy several new tools that will help Greece to finance these investments. Ideally, these investments are accompanied by a restructuring of the public research system.

Create incentives for Researchers to stay in or come to Greece

The most important resources for generating an innovation economy are the researchers working for it. Well-educated researchers are the driving force behind cutting edge research, new developments, and innovation. In order to be able to compete with research institutions elsewhere in the world, Greek stakeholders must remove the barriers that discourage Greek researchers from staying home and other researchers from coming to Greece. Thus, working and research conditions have to be designed appropriately to turn the brain drain into brain circulation. Attractive conditions contain three aspects: (a) independent research with the only target of top quality research output; (b) salaries that compete with similar institutions in Europe; and (c) a low regulatory burden for starting research in Greece.

Expand research clusters based on existing specialization

When founding new research institutes, it will be of crucial importance to focus their new research in areas where Greece is specialized in. Clusters will be particularly successful in terms of knowledge spillovers when research institutes, universities and innovative companies are geographically concentrated.²³ In this context

the Greek government has to rethink the geographical reallocation of its scattered research institutes and to allow private businesses to establish their firms next to the research centers. Furthermore, the technology park infrastructure, built in the past with the help of Structural Funds from the European Union, should be re-activated. The main aim of such clusters is the linking of science with business, and the composition of knowledge spillovers from public research institutes to private firms and businesses. Therefore, there is central need for applied research institutes (such as the German Fraunhofer Institutes). In particular these institutes are able to provide knowledge-based solutions to the special needs of technology oriented start-ups aiming to place innovative products in the market. At the same time spin-offs are often established around applied research institutes when their researchers aim to transform their own research ideas to products.

Independence of Research from Politics

The Greek research landscape is strongly determined through political interventions. Investments into research institutes and universities will, however, only work in the sense of being attractive to top researchers if universities and research institutes become independent from political influence. Ministers and MPs need to step back, only providing an overall budget and then leaving for instance the selection process of new researchers to internationally recognized scientists. This process can be supported by an independent research organization providing research grants only on the basis of excellent research quality.

Strengthening efforts to cut red tape

Despite the incremental improvements in the business climate, as shown in the World Bank 2014 report, regulations are still very high for firms in Greece, hindering or imposing substantial cost to both innovators and researchers who are seeking to commercialize their invention through new business ventures. And innovative companies are the first to leave if institutional reforms are not continued. Administrative efforts for entrepreneurial activities need to be substantially reduced. This should include not only reducing the number of days needed to register new businesses, but also the number of bureaucratic steps involved in this process, as well as the number of regulations, fees and reporting duties while running a business. Last but not least, there are

²³ Ellison, G., Glaeser, E.L. (1999): The Geographic Concentration of Industry: does Natural Advantage Explain Agglomeration, American Economic

Review 89, 311-316.

similar barriers to close a business which need also a major reform. Instead of relaxing on its improvements Greece needs to become one of World Bank's top 20 when it comes to "Ease of doing business," as a couple of EU-countries recently succeeded to do. Moreover, all reforms approved by legislation and those reforms that still need to pass parliament will only become effective once implemented and enforced by courts. To support the necessary adjustment processes, administrative officials need to be appropriately trained.

Incentives for regional and local authorities to attract new firms

Greek municipality leaders are excluded from business revenues produced in their municipality, reducing thereby their interest in caring for the local business climate. For successful innovation economies, municipal leaders committed to create an excellent local business climate (efficient, fast administration, excellent primary and secondary education, and good health services) are essential as they create "hands on" the right environment for innovative entrepreneurs. In most successful innovation economies, municipalities are therefore entitled to a share of the locally produced tax-income, rewarding their efforts to create an attractive business environment. The central authorities in Athens therefore need to give away control over certain taxes which could be raised by municipalities.

Diaspora Policy

All measures discussed so far aiming to close the gaps in the innovation chain can be supported with a target-oriented Diaspora policy. Currently, the Greek Diaspora, although very strong, is not treated as an asset. Beyond the goal of creating a specific labor market policy for recruiting talented individuals abroad, the Diaspora policy should open interaction and cooperation between those who go abroad and those at home. This could include options for creating exchange programs for top researchers turning the brain drain to brain circulation for increasing knowledge transfers, for financing R&D, for attracting risk capital, increasing management capacities, or even for export promotion of innovative products produced in the homeland toward the Diaspora. Thus, the goals of Greek innovation policy can be substantially accelerated if accompanied by a target oriented Diaspora policy.²⁴

²⁴ Plaza, S. (2013): Diaspora Resources and Policies, in A.F. Constant and K.F. Zimmermann (eds.): *International Handbook on the Economics of Migration*, Cheltenham, Edward Elgar, 505-529.

Conclusions

Greece's Euro-zone membership may have given the false impression that the economy might be driven by innovation. The Greek economy is not – it faces not only institutional but also severe structural deficits with a small industrial basis, low export ratio, small businesses and many closed professions. If decreasing labor costs and further institutional reforms were to be the only active policy, then Greece's future would be a low wage economy with an extended workbench of other innovative economies. Greece can only become prosperous if it also uses its further comparative advantages in addition to tourism, trade and agriculture.

Greece has a foundation of high quality research institutes at the beginning of the innovation chain, a handful of innovative companies who remained in Greece despite the high regulatory burden, as well as an impressive Diaspora in research, finance and business. Greek authorities need to make substantial investments into the capacity building of new research institutes, accompanied with further institutional reforms, a design of instruments to support knowledge spillovers from research to business, and an appropriate Diaspora approach in order to create an innovation policy which closes the gaps in the innovation chain. By doing so, the number of innovative companies would substantially increase, thus allowing Greece to find a path towards sustainable growth. However, if Greek authorities rest on their laurels of having slightly improved the institutional surrounding, researchers, businesses and capital will continue to stay away.

To this end we propose an innovation agenda designed to turn Greece into an innovation-based economy. However, Greek decision makers must make clear that embarking on an innovation centered policy will not result in an instant improvement in the Greek economy – indeed it will take one decade at the minimum. However, the time to start is now, as the earlier these reforms are put into practice, the sooner the country will enter a sustainable economic growth path.

Of course, whether or not Greece actually becomes an innovation hub depends not just on investments into R&D and research centers, but also on establishing a partnership between the worlds of research, business and entrepreneurship, where ideas can be freely exchanged. Greek Ministers and MPs, regardless of party, must commit to investing time and money, formulating a vision that inspires young Greek entrepreneurs, scientists, and citizens. They must also take concrete actions that signal a serious commitment to innovation. Combined, these efforts may become key to creating trust in the Greek po-

litical system. If the Troika should decide to actively support this process, she would be enabled to successfully accomplish the still necessary reforms. To that end the future discussion between the Troika and Greece needs to be refocused on the Greek capabilities.

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Prof. Dr. Alexander Kritikos, Research Director at DIW Berlin

SIX QUESTIONS TO ALEXANDER KRITIKOS

»Economic Reinvention: Greece's path forward«

1. Dr. Kritikos, despite first reform successes, the Greek economy is still in dire straits. Why? The Greek government has initiated a couple of institutional reforms, in particular the liberalization of closed professions, wage reductions, and making it somehow easier to venture new businesses. However, the economy will not become prosperous only by cutting costs and making institutional reforms, as much as these are needed. The central problem is that the structure of the Greek economy is different from that in other Euro-zone economies: small businesses, in sectors with little value added like in tourism, trade, or agriculture; and not much room for innovation. The Greek economy lacks a strong export sector enabling it to create sustainable, growing wealth for the whole country.
2. What kind of structural reforms should be done? Looking at other Euro-zone countries of comparable size, such as the Netherlands, Belgium, Austria, or Finland, we see that these are innovation-driven economies. All of them are investing around three percent of GDP in research and development (R&D). As a result, their economies are driven by innovation and continual refinement, with new products and technologies regularly introduced. Greece invests much less in R&D. So there is only a small share within the Greek economy that can produce products and services with sufficiently high value added.
3. From where should the money come from to be invested into more R&D? True, currently the Greek government is not able to make such investments. There are, however, a large number of EU programs that allow the financing of R&D. For the funding period starting 2014, the EU has set the goal to making Europe more innovative. It provides several *new* tools that would help Greece for instance to found and finance new research institutes. While Greece does have some high quality research institutes, it needs to cluster many more of them in one and the same geographical area and in the same research area as well to start establishing an innovation system. Currently, Greece is not making sufficient use of these funds.
4. Is there any specialization in Greece which could be expanded? Areas that can become more innovative are on the one hand the traditional sectors of agriculture, food, and tourism. However, this will not be enough to create growing wealth for the whole country. On the other hand, there are also a certain number of IT companies in Greece and some highly innovative companies in the pharmaceutical and energy sectors. Greece needs more of them and these companies require research-based support. Institutions such as the Fraunhofer Institutes are what Greece should build up: applied research providing product-related solutions to innovative firms in the private sector.
5. Has Greece any other assets? Another hidden asset is the large number of top Greek scientists. A recent study found that more than three percent of the world's top scientists are Greek, although Greece only makes up 0.2 percent of the world's population. The problem is that 85 percent of these scientists work abroad. Greece must find a way to better exploit this great potential in the future in its own country and combine it with its domestic industry.
6. What are the largest obstacles? There are two further major obstacles. First, starting, running and closing a business in Greece requires exceptional patience to navigate through an overregulated legal framework. Second, cooperation between publicly financed science and private industry is kind of taboo. Many still believe that science should work in the "ivory tower", and that scientific discoveries should not be economically exploited.

Interview by Erich Wittenberg.

Fiscal Devaluation: Economic Stimulus for Crisis Countries in the Euro Area

by Kerstin Bernoth, Patrick Burauel, and Philipp Engler

Member countries of the euro area, and the peripheral states in particular, face an especially difficult problem: on the one hand, they urgently need stronger economic growth to reduce high debt and unemployment levels. On the other hand, however, they have no scope to use fiscal policy to stimulate the economy. One way to strengthen economic growth without burdening public finances might be to implement a “fiscal devaluation.” This concept includes reducing social security contributions for employers—and therefore ancillary wage costs—making companies more price competitive than their foreign competitors. This, in turn, should stimulate exports and result in positive employment effects. Reducing ancillary wage costs could be financed by an increase in value-added tax. This study shows that a fiscal devaluation in the individual member countries of a currency union may help to boost economic growth in the short term. This instrument should therefore be particularly important for the crisis countries in the euro area, though it by no means replaces the structural reforms required to increase economic growth in the long term.

The current situation in some euro area countries is marked by three mutually reinforcing crises: a public debt crisis, a banking crisis, and an economic growth crisis.¹ Together, these problems have led to a long-lasting recession accompanied by in some cases extremely high unemployment. Resolving all three crises at the same time would appear to be an insurmountable task. Austerity measures to address public debt, for example, would exacerbate problems with the banks and further curb economic growth.² Conversely, fiscal policy measures to stimulate growth would cause an increase—at least in the short term—in public debt, and would not address the banking crisis.

Policy measures which stimulate economic growth without burdening national budgets might be one way out of this dilemma. With the help of automatic stabilizers, they would even improve the public debt situation and facilitate bank recovery. One way member states of a currency union could achieve such effects would be through fiscal devaluation. This mechanism involves a revenue-neutral shift of the burden of employers’ social security contributions toward value-added tax (VAT) in order to improve the competitiveness of a country. Reducing social security contributions would lead to a reduction in production costs, which, in sufficiently competitive markets, would result in price reductions. Con-

¹ J. C. Shambaugh, “The Euro’s Three Crises,” *Brooking Papers on Economic Activity* (Spring 2012).

² The size of fiscal multipliers, i.e., the effect that changes in public spending have on economic growth, continues to be a controversial issue. Müller suggests that austerity measures have a growth-stimulating effect in cases where the budget situation is poor; G. Müller, “Fiscal austerity and the multiplier in times of crisis,” *German Economic Review* 15, no. 2 (2014): 243-258. Nonetheless, the budget surpluses required for sustainable budget consolidation could be too large and may have to be maintained for too long for them to be realistic; B. Eichengreen and U. Panizza, “Can large primary surpluses solve Europe’s debt problem?,” *voxeu.org* (July 2014). An empirical study by Guajardo, Leigh, and Pescatori, in contrast, refutes the expansive effect of austerity policies; J. Guajardo, D. Leigh, and A. Pescatori, “Expansionary Austerity? International Evidence,” *Journal of the European Economic Association* 12, no. 4 (2014); see also A. F. Alesina, and S. Ardagna, “Large Changes in Fiscal Policy: Taxes versus Spending,” *Tax Policy and the Economy* 24 (2010).

Box 1

Fiscal Devaluation in a Theoretical Model

Engler et al. (2013) calibrate a dynamic-stochastic general equilibrium model (DSGE) of the EMU using two countries representing the central-northern and southern regions of the EMU.^{1,2} They examine the effect of a fiscal devaluation in the South on the South itself and on the rest of the currency union. Ancillary wage costs are reduced by one percent of GDP and the VAT rate increased by one percent.³

Reducing ancillary wage costs in the South reduces the marginal costs of production and leads companies to reduce prices, resulting in a relative drop in prices for export goods compared to the central-northern region. A shift in demand from Central-North to the South occurs, causing net exports and production in the latter to increase.⁴

At the same time, there are countervailing effects due to the increase in value-added tax. The resulting reduction in real wages causes employees to demand higher nominal wages. Based on well-known empirical evidence it is assumed that the wage adjustment takes

place only gradually⁵. As a result, marginal costs revert upward only slowly so that the impact of reduced social security contributions predominates in the short run.

The short-term effect on the central-northern region is also positive. Falling prices in the southern region cause the Central Bank to lower interest rates,⁶ resulting in a slight increase in production in the North despite the demand shift in the South. Over the course of time, more and more producers in the South will be able to respond to the price changes and cut their own prices accordingly. This intensifies the shift in demand. In the North, this will outweigh the positive interest effect in the medium term, causing production to decrease slightly. This reduction in production dissipates slowly due to the gradual phase-out of the demand shift effect. The fact that all effects are transitory in nature in the Center-North-region is a crucial difference to the South-region where positive effects remain in the long-run. Looking at these effects cumulatively, conclusions can be drawn as to the external economic position of the southern region of the EMU. As the terms of trade deteriorate due to the changed prices, consumption increases less than production. This results in a better net external assets position and a slightly better trade balance. This effect vanishes in the mid-term as net external assets position returns to balance by assumption.

In the medium term, production remains high owing to the shift of tax and contribution burdens in favor of domestic production and to the detriment of foreign production. The cause for this is the relatively high decrease in ancillary wage costs as compared with the VAT increase.

1 P. Engler, G. Ganelli, J. Tervala, and S. Voigts, "Fiscal devaluation in a Monetary Union," Discussion Papers 2013, no. 18, (Freie Universität Berlin, School of Business & Economics, 2013).

The central-northern region includes Belgium, Germany, Finland, France, Luxemburg, the Netherlands, and Austria; the south includes Greece, Ireland, Italy, Portugal and Spain.

2 Other studies also examine fiscal devaluation using two-region models, for example F. Franco, "Improving competitiveness through fiscal devaluation, the case of Portugal," Universidade Nova de Lisboa (2011); L. von Thadden and A. Lipinska, "On the (In)effectiveness of Fiscal Devaluations in a Monetary Union," Papers submitted for the annual conference of the German-speaking economists association, the Verein für Sozialpolitik (2013).

3 For the numbers to add up, this requires a permanent reduction in the social security contribution rate by 1.7 percentage points and an increase in value-added tax by one percentage point. This is approximately equivalent to twice the revenue shift in Germany for the year 2007 with additional revenue from higher value-added taxes amounting to 0.6 percent of GDP and a loss of 0.4 percent of GDP due to lower social security contributions (OECD, Stats, and calculations by DIW Berlin).

4 Since producers are assumed to reduce their prices gradually, the intensity peak is not reached until after several quarters.

5 For empirical analyses on wage rigidity see, inter alia, J. Babecký, P. Du Caju, T. Kosma, M. Lawless, J. Messina, and T. Rööm, "Downward Nominal and Real Wage Rigidity: Survey Evidence from European Firms," *The Scandinavian Journal of Economics* 112, no. 4 (2010): 884-910.

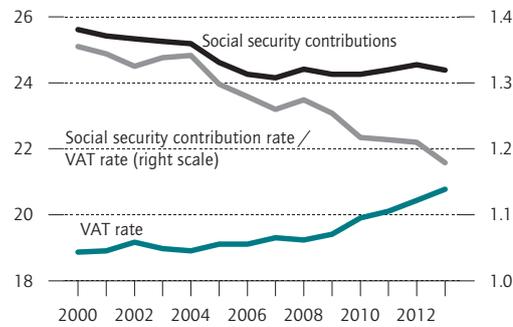
6 The Central Bank applies what is known as the Taylor Rule, responding to deflation by reducing interest rates.

sequently, goods manufactured on domestic markets become relatively cheaper than those produced abroad, causing a shift in domestic demand in favor of domestic products and a stimulation of exports. This can in turn lead to increased employment and lower unemployment levels. The loss of public revenue owing to lower social

security contributions is offset by an increase in VAT. This causes a rise in prices for products consumed on the domestic market, but this applies equally to goods produced abroad. In short, a fiscal devaluation—similar to a nominal currency devaluation in economies that

Figure 1

Average Employer Social Security Contributions and VAT Rates in the Euro Area



Source: OECD; calculations by DIW Berlin.

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VAT rates in the euro area have gone up considerably.

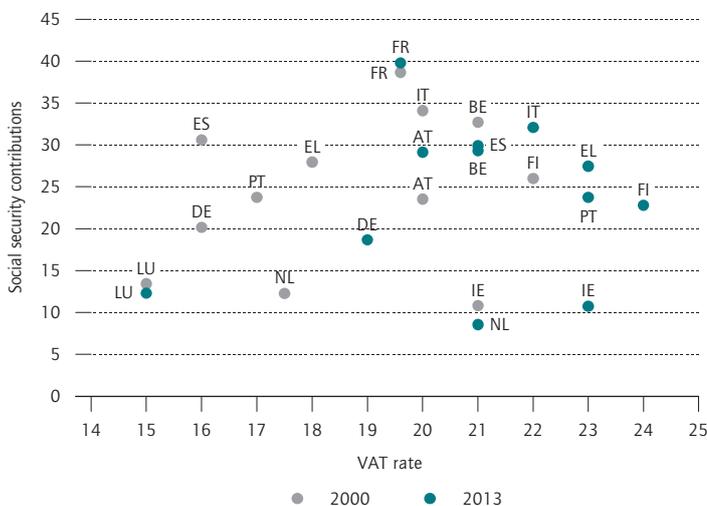
One advantage of fiscal devaluation is that it can be implemented without the consent of the other euro area countries. In times when monetary policy stimulus is no longer possible since interest rates are already at or near zero, revenue-neutral yet growth-oriented fiscal policy measures could be crucial.⁴

Fiscal Devaluation in Practice

Looking at the euro area as a whole, there is a general trend towards implementing changes to tax and social contribution structures (see Figure 1). Between 2000 and 2013, the average non-weighted rate of employer social security contributions fell by 1.2 percentage points to 24.5 percent.⁵ In the same period, average VAT went up by approximately two percentage points, taking it to 20.8 percent. From 2000 to 2013, there were 28 cases in the EMU where VAT was raised as opposed to just five cases where it went down. At the same time, there were two dozen cuts of more than 0.5 percentage points to employer-side social security contributions (see Figure 2).

Figure 2

Employer Social Security Contributions and VAT Rates of Euro Area Countries in 2000 and 2013



Source: OECD; calculations by DIW Berlin.

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Most euro area member states have implemented a fiscal devaluation since the introduction of the euro.

have their own currency—improves the international competitiveness of a country’s businesses (see Box 1).³

3 For a partial replacement of social security contribution by an increase in consumption taxes in order to strengthen employment in a national context, see 2005/06 Annual Economic Report by the German Council of Economic Experts, 388 ff.

A closer look at cases of simultaneous changes in VAT rates and employer social security contributions shows that there have been six cases of fiscal devaluation in the EMU since 2000: Ireland (2002), Germany (2007), Spain, Finland (both in 2010), the Netherlands (2012), and finally France (2014) (see Figure 3, top graph).⁶ As regards the amount of ancillary wage costs, France implemented the most radical fiscal devaluation; the employer social security contribution rate was reduced by around 2.5 percentage points,⁷ followed by the Netherlands, Germany, and Finland with a reduction of 1.1 to 1.5 percentage points. The lowest cut in employer social security contributions in this group of countries was Spain (0.25 percentage points).

With the exception of Finland and France, the parallel increase in VAT was greater than reductions in social security contributions: in Germany, VAT was raised by

4 Mario Draghi at this year’s Jackson Hole central bank meeting: “Second, there is leeway to achieve a more growth-friendly composition of fiscal policies. As a start, it should be possible to lower the tax burden in a budget-neutral way.” (August 22, 2014).

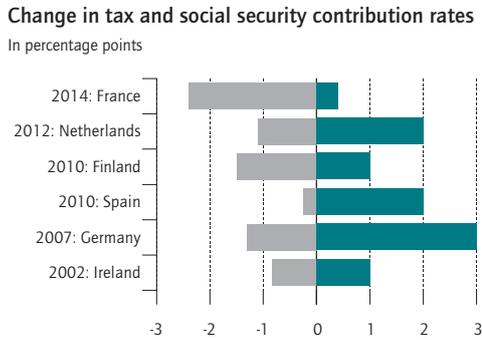
5 The euro area countries Latvia, Malta, and Cyprus are not included in this calculation owing to a lack of relevant data. The data source is the OECD: stats.oecd.org/Index.aspx?DataSetCode=TABLE_15.

6 According to the data, minor adjustments to social security contributions are often carried out over several years, as opposed to one-off increases in the VAT rate. For this reason, to calculate the change in social security contribution rates in the year of a VAT increase, social security contribution adjustments for the current, previous, and following year are added together.

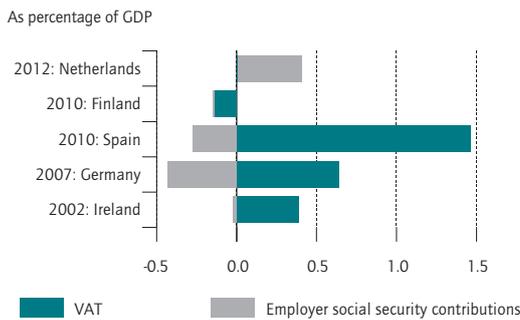
7 At the time of writing, OECD data for social security contributions in France in 2014 were not yet available, which is why only the tax changes for ancillary wage costs up to 2013 could be factored in here.

Figure 3

**Cases of Fiscal Devaluation 2000 - 2014:
Simultaneous VAT Increase and Social Security
Contribution Decrease**



**Change in revenue from VAT and employer social
security contributions**



Source: OECD; calculations by DIW Berlin.

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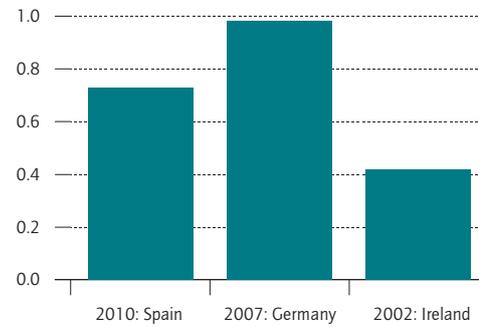
During the period of observation, six countries simultaneously lowered social security contributions and raised VAT rates.

three percentage points, in the Netherlands and Spain by two percentage points each, and in Finland and Ireland by one percentage point. In France, VAT went up by as little as 0.4 percentage points to 20 percent.

The asymmetry in the changes in social security contributions and VAT rates hints to the fact that fiscal devaluations are not generally implemented in a revenue-neutral fashion. Rather, it is likely that the recovery of national budgets constitute an equally important objective than the improvement of international competitiveness. This supposition is confirmed by the changes in tax revenue for the aforementioned countries at the time of the fiscal policy measure (see Figure 3, bottom). With the exception of Finland, every case of fiscal devaluation described here was “over-financed”; the higher VAT revenue outweighed the losses resulting from the lower

Figure 4

**Indicator of Revenue Neutrality with Fiscal
Devaluation**



Source: OECD; calculations by DIW Berlin.

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In Ireland and Spain, the fiscal devaluations in 2002 and 2010, respectively, were highly over-financed.

social security contributions.⁸ Given the large number of other factors, however, it is difficult to attribute the changes in revenue to the changes in tax and contribution rates. Nevertheless, with the exception of Finland and the Netherlands, the revenue figures are moving in the expected direction.

In order to be able to vet the revenue-neutrality of tax and contribution measures, DIW Berlin developed a revenue neutrality indicator ranging from zero to 100 percent (see Figure 4 and Box 2). An indicator value of 100 percent shows that the measures were revenue-neutral, i.e., the loss in revenue resulting from a reduction in social security contributions was offset by an increase in VAT revenue of equivalent scale. An indicator value of zero denotes that the change in revenue caused by the reduction in employer social security contributions was not offset by the increase in VAT rate at all. The latter is the case in approximately 50 cases where tax and social security contribution changes were implemented during the period of analysis. An indicator value between zero and 100 signifies that fiscal devaluation was implemented and to what extent it was either under- or over-financed. All cases analyzed here are cases of over-financing. Therefore, the higher the degree of over-financing, the lower the indicator value will be. The results show that fiscal devaluation implemented in Germany was virtually

⁸ The fact that countries where fiscal devaluation has been implemented will not have to worry about the onset of budget problems is an important argument in favor of this balancing mechanism; D. Cavallo and J. Cottani, “Making fiscal consolidation work in Greece, Portugal, and Spain: Some lessons from Argentina,” Vox.eu.org (February 2010).

Box 2

An Indicator of Revenue Neutrality with Fiscal Devaluation

To make the concept of fiscal devaluation tangible for statistical analyses, the relevant data is aggregated to produce a meaningful indicator for revenue neutrality. Two things are of relevance in this regard: first, the scope of fiscal devaluation, i.e. the magnitude of changes in tax and contribution rates, and, second, the dominance of budgetary surplus or budgetary deficit, i.e. the degree to which the social security revenue reduction was under- or over-financed.

An index is calculated for each EMU country that implemented a value-added tax increase and a simultaneous reduction in social security contribution rates between 2000 and 2013. This index reflects the degree of balance in the financing and ranges from 0 to 100 per cent.¹ This factor is defined as follows:

$$\frac{\sqrt{|\Delta VAT_{rev} \times \Delta SSC_{rev}|}}{|\Delta VAT_{rev}| + |\Delta SSC_{rev}|}$$

Here, ΔVAT_{rev} is the change in VAT revenue in percentage of GDP and ΔSSC_{rev} is the change in public revenue from employer social security contributions as a percentage of GDP (as a sum of the changes in the year of the VAT increase, as well as the previous and following year). Germany, for example, reduced social security contributions by 1.31 percentage points in 2007. Since this reform was only slightly over-financed, the revenue neutrality indicator is relatively high at 98.1 percent.

¹ At the time of writing, the tax statistics for 2014 were not yet available, which is why the fiscal devaluation in France has not been factored in here.

revenue-neutral, whereas the degree of over-financing was highest in Ireland.⁹

⁹ In the case of fiscal devaluation in Finland (2010) and the Netherlands (2012), changes in tax revenue occur that do not reflect the changes in the tax rates. For instance, VAT revenue is falling despite the increase in VAT. For this reason, no indicator is calculated for these two countries.

Estimated Short-Term Effects of Fiscal Devaluation in the Euro Area

A regression analysis was performed to examine whether and to what extent the instrument of fiscal devaluation can actually affect the price competitiveness of a member state of the European Monetary Union. The estimations are based on annual data for all EMU member states (with the exception of Latvia, Malta, and Cyprus) for the period 2000-2013. The dependent variable under analysis is the per capita trade balance of a country. Social security contribution and VAT rates, the revenue neutrality indicator, and various other macroeconomic variables that studies have shown to be useful were taken as explanatory variables.¹⁰ All the explanatory variables are measured relative to the euro area average.¹¹ The reason for this is that the aforementioned fiscal devaluation mechanism can only work if fiscal changes cause the relative price structure between two trade partners to change; in other words, the more countries implement fiscal devaluations at the same time, the lower the expected effect on international competitiveness. Besides “fixed effects” for countries, annual dummies were also added to the regression in order to factor in time-specific effects.¹²

The empirical model explains around 70 percent of the variation in the per capita trade balance figures (see Table, column A). The estimation results show a significantly negative effect of the employers’ social security contribution rate on a country’s per capita trade balance.¹³ This indicates that individual countries are able to boost their competitiveness on the international stage by lowering social security contributions for employers.

¹⁰ These are the rate of inflation, the growth rate of GDP, the net international investment position (in percentage of the GDP), the unemployment rate, and the age dependency ratio.

¹¹ Besides different model interpretations, the analysis of relative sizes is one of the main differences to the related study by R. de Mooij and M. Keen, “Fiscal Devaluation and Fiscal Consolidation: The VAT in Troubled Times,” NBER Working Paper 17913 (2012). The relative size of a variable x is calculated as follows: $\frac{x - \bar{x}}{|\bar{x}|}$, where \bar{x} denotes the average of x across all euro area countries.

¹² The estimations are performed with panel-corrected standard errors to compensate for possible heteroscedasticity and correlation in the error terms.; N. Beck and J. N. Katz, “What to do (and not to do) with time-series cross-section data,” *American Political Science Review*, 89 (1995): 634-647.

¹³ If the social security contribution rate in a country is three percent lower than the average in the euro area (e.g., 29 per cent as opposed to 30 percent in the euro area), the trade balance per capita for this country will be 300 percent higher than the average trade balance per capita for all the countries in the euro area. When evaluating this figure, which may seem rather high at first glance, it should be borne in mind that the trade balance per capita is normally low in relation to the level of exports (imports), which is why even moderate changes in exports—here, owing to the improved price competitiveness as a result of fiscal devaluation—can lead to considerable changes in the balance of trade.

Table

Trade Balance Per Capita

	(A)	(B)
Rate of inflation	-1.60	-1.59
GDP growth	-0.36	-0.35
Net international investment (as a percentage of the GDP)	3.29***	3.30***
Unemployment rate	21.34**	20.99**
VAT rate	-100.38	-99.83
Employer social security contribution	-98.20***	-98.50***
Age dependency ratio ¹	412.360**	410.51**
Revenue neutrality indicator	22.206*	22.08*
Labor-intensive industrial structure ²		3,816.23
Labor-intensive industrial structure* social security contribution rate		-42.88
Constant	-15,142.97***	1,370.62
R ²	0.71	0.71
N	172	172

1 Age dependency ratio: population aged 65 or older relative to population aged 15 to 64 years.

2 Dummy labor-intensive industrial structure: dummy takes the value 1 if the proportion of labor-intensive industries in a country is greater than 30 percent; otherwise 0.

With the exception of the revenue neutrality indicator, the dependent variable and all the explanatory variables are given as deviations (in percent) from euro area averages.

Sources: Eurostat, OECD, S. Totev and G. Sariiski (2008).

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The lower the employer social security contributions, the higher a country's balance of trade.

In contrast, the VAT rate has no effect on a country's balance of trade. This is not particularly surprising. Given that consumption taxes apply solely to domestic consumption, they do not influence the relative price structure vis-à-vis a trading partner and should therefore not have any effect on trade.

The regression results also show that a revenue-neutral reduction in social security contributions for employers (fiscal devaluation in the traditional sense) has an additional positive effect on a country's trade balance. This may well be due to the high level of credibility associated with a fully financed easing of the burden on companies. In that case the reduction in contributions is considered a permanent change and companies are less prone to suspect a reversal of tax fortunes in the foreseeable future. As a consequence, companies are expected to implement larger price reductions which lead to correspondingly larger effects on the trade balance. In the case of over-financing, i.e., lower indicator values, the additional positive effect on the balance of trade is less pronounced.

Since fiscal devaluations work through lowering ancillary wage costs, it is reasonable to assume that the impact on labour-intensive sectors is more substantial.¹⁴ Consequently, the effect of fiscal devaluations in countries with more labor-intensive production, as is often the case in the crisis countries in the euro area, should be even greater.¹⁵ However, if the proportion of labor-intensive sectors of a given country is taken into account in the regression analysis, no such effect can be determined (see Table, column B).

Other Possible Effects of Fiscal Devaluation

As well as providing a positive stimulus for a country's balance of trade, fiscal devaluations also constitute a step toward a more growth-oriented tax system.¹⁶ Shifting ancillary wage costs to consumption taxes has a positive effect on employment and might increase the savings ratios of private households. This is confirmed by Johansson et al., who believe consumption taxes hinder growth less than ancillary wage costs and corporate taxes.¹⁷ In addition, these adjustments are in line with the efforts of the European Commission to harmonize tax systems and, in particular, VAT rates in the euro area.¹⁸ The resulting push for deeper integration in the Single Market would boost efficiency and promote growth. In other words, besides the short-term-effects via increased external trade, fiscal devaluation would also bring about long-term stimuli.

¹⁴ R. de Mooij and M. Keen, "Fiscal Devaluation and Fiscal Consolidation: The VAT in Troubled Times," Working Paper, no. 17913, (National Bureau of Economic Research, 2012).

¹⁵ In Spain and Italy, the proportion of labor-intensive industries is higher than 30 percent and in Portugal and Greece more than 40 percent. In France and Germany, in contrast, this figure is far lower (less than 25 and 20 percent, respectively); see S. Totev and G. Sariiski, "The Spatial Distribution of Labour Intensive Industries in the EU," *Regional and Sectoral Economic Studies* 8, no. 1 (2008): 5-28.

¹⁶ J.M. Arnold, B. Brys, C. Heady, A. Johansson, C. Schwellnus, and L. Vartia, "Tax policy for economic recovery and growth," *Economic Journal* 121 (2011): F59-F80.

¹⁷ Å. Johansson, et al., "Taxation and Economic Growth," OECD Economics Department Working Papers, no. 620 (2008).

¹⁸ The VAT Directive of the European Union requires the standard VAT rate to be at least 15 percent. The Council of the European Union refers explicitly to the threat of „structural imbalances“ caused by divergent VAT rates, Directive 2010/88/EU of the European Council, available on eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=CELEX:32010L0088&from=EN. See also "Green Paper on the future of VAT - Towards a simpler, more robust and efficient VAT system," European Commission (2010), [ec.europa.eu/taxation_customs/resources/documents/common/consultations/tax/future_vat/com\(2010\)695_en.pdf](http://ec.europa.eu/taxation_customs/resources/documents/common/consultations/tax/future_vat/com(2010)695_en.pdf).

Burda and Weder also point out the stabilizing effect of lowering ancillary wage costs on cyclical fluctuations.¹⁹ They show that financing social security benefits with employer social security contributions explicitly reserved for that purpose strengthens business cycles. If social security payments are financed by corresponding taxes with a balanced budget rule and social security tax revenue decreases during a downturn, a financing gap opens up. This gap will be closed by increasing the social security tax rates and this, in turn, leads to an even deeper downturn. The undesirable link between the social security budget and the business cycle would be broken by a move towards consumption taxes.

Conclusion

In view of huge debt levels and simultaneously high unemployment rates in the crisis countries of the euro area, one should focus on policy measures that can stimulate growth without increasing the burden of public finances. A fiscal devaluation, i.e., lowering employer-side social security contributions while increasing VAT at the same time, would constitute one such measure. It would have a positive effect on a country's trade balance and possibly also on the rate of economic growth. If fiscal devaluation is to reduce trade imbalances between the member states of the euro area, it is imperative that this instrument be employed primarily in the crisis countries with chronic trade balance deficits

By no means will fiscal devaluation alone be sufficient to solve the problems of the crisis countries in the euro area. However, given that the current reform agenda of the European Commission is focused on restrictive fiscal policy and structural reforms whose positive effects on economic growth will only unfold in the long term, fiscal devaluations could serve as a tool to boost economic growth in the period of transition.

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Keywords: Fiscal policy, fiscal devaluation, tax policy, trade balance, international competitiveness

¹⁹ M.C. Burda and M. Weder, "Payroll Taxes, Social Insurance and Business Cycles," (computer printout, Humboldt Universität zu Berlin, 2014).

Debt Restructuring in the Euro Area: How Can Sovereign Debt Be Restructured more Effectively?

by Christoph Große Steffen and Julian Schumacher

The International Monetary Fund (IMF) stated in spring of this year that a more timely restructuring of Greece's sovereign debt would have been beneficial. But what are the available options for early debt restructuring? The report argues that current reforms in the Euro area, in particular, introducing collective action clauses, are unlikely to be sufficient in their present form. Alternatively, a statutory solution in the form of an international or European insolvency regime for sovereign states is difficult to implement politically. Therefore, the contractual approach to debt restructuring should be facilitated by redesigning future contracts for bonds in the euro area. Specifically, more powerful collective action clauses should be included in bond contracts and the ratable payment provision of all creditors should be reformed in order to limit the impact of legal disputes in the event of a debt restructuring. This approach would simplify future debt restructuring operations and make the no-bailout rule more credible, thus re-activating the disciplinary effect of interest rates on governments.

Public debt levels in the euro area have increased enormously from 2007 to 2013 and are projected to stay at elevated levels over the coming years (see Figure 1).¹ The rise in public debt is primarily due to two factors. First, the number of bank bail-outs during the financial crisis led to an increase in public sector liabilities. Second, economic stimulus packages and the use of automatic stabilizers in the course of the Great Recession were contributing to high and persistent public deficits. Further, debt levels were already elevated in Greece and Italy before the crisis.

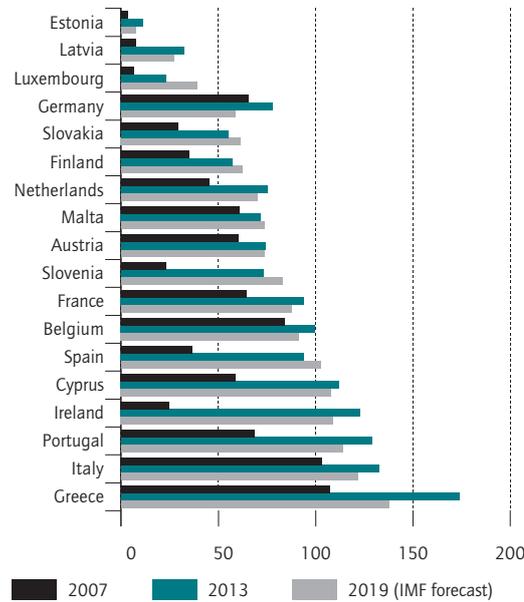
As a result, four member countries of the Monetary Union ran into financial difficulties: within one year from May 2010 to May 2011, Greece, Ireland, and Portugal lost access to the international capital market and had to be supported by lines of credit from European partner countries and the International Monetary Fund; Cyprus followed in May 2013. The European Monetary Union was completely unprepared to cope with the national debt crises. In particular, it had no arranged framework to deal with the insolvency of a member state. Restructuring the debts of the affected crisis countries was therefore a high-risk strategy. The danger was that the euro would break up as a currency union due to cross-border contagion effects. For a long time, the European partners' only means of preventing this was short-term liquidity assistance. While this was buying necessary time, this strategy would sooner or later result in costly transfer payments in the event of unsustainable debt levels.² As a result, there is a particularly serious moral hazard in the euro area because the crisis countries

¹ The present article is part of a series of DIW Wochenbericht reports dealing with the elements of a strategy to institutionally restructure the Monetary Union. See F. Fichtner, M. Fratzscher, M. Podstawski, and D. Ulbricht, "Making the Euro Area Fit for the Future," DIW Economic Bulletin, no. 24 (2014).

² M. Kokert, D. Schäfer, and A. Stephan, "Low Base Interest Rates: An Opportunity in the Euro Debt Crisis," DIW Economic Bulletin, no. 5 (2014): 3-13.

Figure 1

Debt Levels in the Euro Area
Debt Levels in the Euro Area



Sources: IMF World Economic Outlook; calculations by DIW Berlin.

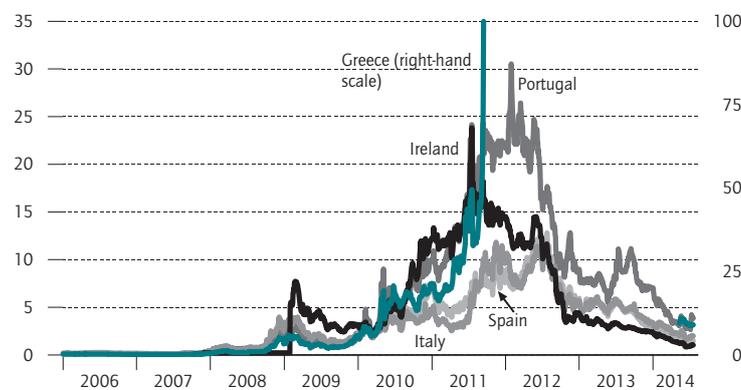
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Debt problems in the euro area will remain highly relevant for the foreseeable future.

Figure 2

Default Probability over 5-Year Period
Derived from CDS Market Prices¹

In percent



¹ Calculated assuming a recovery rate of 50 percent.
Sources: Bloomberg; calculations by DIW Berlin.

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The probability of a debt haircut is again regarded by the financial markets as increasingly low.

have an incentive to shelve efforts for more budgetary discipline to better buffer adverse shocks while more solvent countries engage in international financial aid packages to shield themselves from adverse spillovers.

Statutory Insolvency Regime for States Implies Economic Trade-offs

One alternative to the bailout policies implemented in the crisis would be a European debt restructuring framework, that is, an explicit legal regulation in the event of a sovereign default that bails in sovereign creditors. While such institutional frameworks have been called for after each sovereign debt crisis over the past three decades,³ its implementation has so far failed due to political resistance—particularly owing to the economic trade-offs associated with an insolvency framework of this kind. The pros and cons to this approach cannot easily be assessed in practice. The reason for this lies in the specific nature of sovereign debt which can be difficult to legally assert in the event of payment default.⁴ Therefore, the repayment of debts and interest of a sovereign state might be prone to opportunistic behavior in the form of a state repudiating a large part of its debt by means of a debt haircut. In practice, however, the loss of reputation, negative trade effects, the high costs of legal disputes, and the impact on the financial system usually prevent strategic payment defaults.⁵ These disciplining factors make it possible for the country to accumulate debt at comparatively low-interest payments despite the legal uncertainty for investors.⁶ An insolvency regime might therefore lead to higher financing costs in the euro area. A future restructuring regulation should consider both effects: the costly restructuring of sovereign debt or unpleasant bailout policies conditional on a future crisis and the interest rates countries face when the institutional setting changes.

There is a disparity in the euro area at present: the ex post costs accompanying a debt restructuring outweigh the positive disciplining ex ante effects of these costs. In particular, financial sector linkages in advanced and financially developed economies as in the euro area lead to

³ K. Rogoff and J. Zettelmeyer, "Bankruptcy procedures for sovereigns: A history of ideas, 1976–2001," IMF Staff Papers 49 (3) (2002): 470–507.
⁴ A. Szododrich, Staateninsolvenz und private Gläubiger: Rechtsprobleme des Private Sector Involvement bei staatlichen Finanzkrisen im 21. Jahrhundert, (Berlin: 2008).
⁵ E. Borensztein and U. Panizza, "The Costs of Sovereign Default," IMF Staff Papers 56 (4) (2009): 683–741.
⁶ M. Dooley, "International financial architecture and strategic default. Can financial crises be less painful?," Carnegie-Rochester Conference Series on Public Policy 53 (2000): 361–377.

very high overall economic costs.⁷ Certainly, these costs ensure that the probability of default is lower from the creditor's viewpoint, which is why a state can accrue debt at lower interest rates. However, this incentive problem leads to the problem of overborrowing in the euro area—and since the welfare losses incurred in the event of a disorderly debt restructuring ought to outweigh the advantages of favorable interest rates by far, an insolvency regulation for the euro area would be particularly advantageous.⁸

Attempts to make debt restructuring easier in the future do not seem to have brought about a noticeable rise in national financing costs; on the contrary, the probability of a default occurring is currently once more at an all-time low (see Figure 2). This is primarily because of the implicit bailout guarantee of the ECB, whereby the euro as a currency and the Monetary Union are to be retained in their current form. Certainly, the explicit pricing of a debt restructuring scenario would better reflect the actual risks in the European sovereign debt market with heterogeneous debt levels. In the short term, however, a return of financial market turbulence cannot be completely ruled out in the euro area in response to a premature introduction of an insolvency statute for states. In particular, the resulting higher perceived risks from government bonds from the crisis countries could lead to a renewed rise in risk premiums that render current debt levels unsustainable.⁹

Rescue Policy for Euro Countries Has Time-Inconsistency Problem

The rescue policy for the euro countries also has an additional problem which is evident in the case of Greece: funds made available by international backers in 2010/11 were used to pay off Greek bonds with short maturities in full such that these holders did not contribute to the debt restructuring of 2012.¹⁰ As a result, funds from

the European Financial Stability Facility (EFSF) were effectively used as a bailout. As the legal successor of the EFSF, the European Stability Mechanism (ESM) will therefore take on the loans, which according to its own statutes it ought never to have spent because it is only entitled to ease liquidity bottlenecks and which fundamentally presuppose sustainable debt levels. This problem persists and is coupled to any form of assistance given in the event of liquidity bottlenecks which later turn out to be cases of insolvency. Effective bail-in elements are lacking at present—that is, mechanisms that would shift liability back to the creditors—meaning the ESM will always agree in hindsight to a bailout due to the time-inconsistency problem (see Box 1).¹¹ This has two substantial disadvantages. First, the insufficient control function of the financial markets will continue to undermine decisions made by national governments in the euro area relating to indebtedness. Second, this compounds coordination problems for creditors because, given the prospect of loans being fully repaid, there are incentives for spurning an offer of debt rescheduling.

Coordination Problems among Creditors and Holdouts Increase Costs of Debt Restructuring

There are two cases in which coordination problems may occur for creditors.¹² In the first case, a group cannot agree on a reasonable restructuring offer for an illiquid or insolvent government. In the second, a small group refuses a restructuring offer (holdout creditors), and insists on being paid the original nominal value instead, with the expectation of improved solvency due to the debt reduction. This free riding behavior can then lead to the remaining creditors, for whom the deal would have been favorable, no longer agreeing to it.¹³ Agreement is then prevented in certain circumstances, or certainly made more difficult or delayed.¹⁴

As a result, coordination problems between creditors force up the costs of debt restructuring and therefore

⁷ C. Große Steffen and P. Engler, "Sovereign risk, interbank freezes, and aggregate fluctuations," ssrn.com/abstract=2489914 (2014).

⁸ P. Gai, S. Hayes, and H. Shin, "Crisis costs and debtor discipline: The efficacy of public policy in sovereign debt crises," *Journal of International Economics* (62) 2 (2001): 245–262.

⁹ In this context, reference should be made to a meeting on October 19, 2010 between Merkel and Sarkozy in Deauville, France, where they agreed there must be bail-in elements for private creditors in connection with ESM financial aid. It is, however, contentious as to whether the simultaneously turbulent financial markets were actually caused by this statement; see A. Mody, "The ghost of Deauville," voxeu.org/article/ghost-deauville, (2014).

¹⁰ International backers included the IMF and euro area countries as part of the first aid package. The second aid package also included EFSF funds. The restructuring of private creditors then followed with a time lag in March 2012; see J. Zettelmeyer, C. Trebesch, and M. Gulati, "The Greek debt restructuring: an autopsy," *Economic Policy* (2013): 513–563.

¹¹ M. Miller and I. Zhang, "Sovereign liquidity crises: The strategic case for a payments standstill," *Economic Journal*, (1010) (2000) 460, 335–362.

¹² R. Bi, M. Chamon, and J. Zettelmeyer, "The problem that wasn't: Coordination failures in sovereign debt restructurings," *IMF Working Paper*, WP/11/265 (2011).

¹³ Holdout strategies are particularly worthwhile with pro rata clauses, see R. Pitchford and M. Wright, "Holdouts in sovereign debt restructuring: A theory of negotiation in a weak contractual environment," *Review of Economic Studies* 79, (2012): 812–837.

¹⁴ Famous cases include NML vs. Argentina, in which the 2005 debt restructuring had to be postponed by several months due to seizures by holdout creditors; another example is in Peru where the Brady debt restructuring in the 1990s was initially attacked by US banks and later by the Elliott hedge fund.

Box 1

ESM Liquidity Assistance and the Problem of Time Inconsistency

The time-inconsistency problem of the European Stability Mechanism (ESM) can be illustrated using a simple game-theory example.¹ Suppose a member of the Monetary Union gets into financial difficulties but remains solvent. The actual value of all assets is 130. However, due to the illiquidity of the country, the assets only have a market value of 100. In the game scenario, it is now a question of splitting the value of the assets between the creditors on the one hand, and the debtor government and the ESM on the other. Suitable courses of action are: creditors can either extend their loans or seize the outstanding amount. In turn, the ESM can issue a rescue loan (bailout) or do nothing.

According to the payout matrix (see Table), it is evident that there are two Nash equilibria. If the creditors choose a credit extension and therefore make concessions to the creditor country, they receive 80, while the debtor country receives 50, i.e., the difference between the total value and the creditor payment. The total value of 130 is maintained in the roll-over scenario. However, if creditors decide against a credit extension, it makes sense for the ESM to agree to a bailout. In the case of a seizure, the creditor receives 100 since the ESM underwrites full payment. The debtor receives the remaining 30, less 5 for the macroeconomic adjustment program which it has

¹ The example shown here is taken from an analysis by Miller and Zhang, "Sovereign liquidity crises," and applied to the case of the ESM.

Table

Payout Matrix

		ESM/Debtor	
		No action	Bailout
Creditor	Credit extension	(80,50)	(80,50)
	Seizure	(40/0)	(100/25)

Source: M. Miller and I. Zhang, "Sovereign liquidity crises."

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to retain in the event of financial aid. If the creditors decide in favor of a seizure and the ESM does not provide a bailout, then the creditor only receives the available securities of 40. The debtor country is subject to a disorderly sovereign default and is punished by high economic costs and contagion effects due to the payout of 0.

From the ESM's perspective, it would now be optimal to coordinate the Nash equilibrium in the top left. However, this is not possible, assuming that creditors are able to choose their strategy first (first-mover advantage) and decide not to extend the loans. In this case, the ESM strategy of not offering bailouts is implausible and therefore time inconsistent. Since it only has the choice between payouts of 0 (no action) and 25 (bailout), it will opt for the bailout, although this is not its preferred equilibrium. If the creditor has all the information about the game, there is only one dominant strategy: in the event of a liquidity crisis, the creditor will never extend the loan and the ESM will always agree to a bailout.

have a negative effect on the euro area as a whole by amplifying potential spillover effects. There are, however, at least two options to defuse these coordination problems. First, this could be achieved by adding debt restructuring clauses to contractual documentation when issuing new sovereign bonds, making it easier for creditors to coordinate in the event of insolvency.¹⁵ Second, statutory elements could be set up to prevent holdout strategies.¹⁶

¹⁵ Additional elements that could reduce the coordination problem include *minimum participation constraints* (in which a debt restructuring can only be implemented if a large majority of creditors participates) as well as *exit consents* (in which the non-reserved matters are changed), see Bi et al., "The problem that wasn't."

¹⁶ A. Haldane et al., "Analytics of sovereign debt restructuring," *Journal of International Economics* 65 (2003) 315-333; S. Ghosal and M. Miller,

Current Collective Action Clauses Inadequate

Investor coordination problems have occurred much more frequently in sovereign debt restructurings since the early 1990s. While the aggregated participation rate in restructuring measures remains high,¹⁷ holdout creditors have increasingly legally contested debt restructur-

"Co-ordination failure, moral hazard and sovereign bankruptcy procedures," *The Economic Journal* 113 (April 2003): 276-304.

¹⁷ Moody's, "The Role of Holdout Creditors and CACs in Sovereign Debt Restructurings," Special Comment (2013).

ings.¹⁸ The Greek government is fighting lawsuits despite the fact that the 2012 debt restructuring involved the vast majority of creditors.¹⁹

In order to simplify future debt restructurings, in March 2011, the European Council stated its intention to include Collective Action Clauses (CACs) in all contractual documentation for new bonds (see Box 2). This was later included in the ESM treaty and implemented from the start of 2013 for all new bond issues in the euro area.²⁰ Previously, European sovereign bonds did not usually include CACs.²¹ Emerging countries, on the other hand, have increasingly been using these clauses for at least the past decade. However, the clauses often only encompass investors in individual bonds. This can lead to holdout creditors blocking a debt restructuring despite the presence of CACs.²² To circumvent this problem, the new Euro-CACs propose two voting options which can be presented to the creditors: apart from a traditional bond-specific vote, in which 75 percent of creditors must vote on each bond, it is also possible to implement an aggregated vote on multiple bonds. If this option is chosen, changes to the reserved matters of a bond become binding for all investors if two majorities are reached: three-quarters of the aggregated nominal value of all outstanding bonds and two-thirds of the nominal value of individual bonds.

If a two-thirds majority is not reached for the second group, however, the bond will not be completely restructured even if a three-quarters aggregate majority is reached. Bond-specific participation rates of less than two-thirds are not unusual, particularly for large restructurings with many separate securities (see Figure 3), even though all debt restructurings in the past 15 years have achieved aggregated agreement rates of over 75 percent.

¹⁸ J. Schumacher, C. Trebesch, and H. Enderlein, "Sovereign defaults in court: The rise of creditor litigation," *ssrn.com/abstract=2189997* (2014).

¹⁹ Slovakian and Cypriot banks have initiated legal proceedings against Greece at the World Bank arbitration court (International Centre for the Settlement of Investment Disputes, ICSID), see *Poštová banka, a.s. and Istroskapital SE v. Hellenic Republic*, ICSID Case No. ARB/13/8. The case was accepted by the ICISD for consultation. At present, it is still hearing evidence. A group of small investors brought an action before both German and Greek courts; these have so far been rejected in the first instance, however.

²⁰ See europa.eu/efc/sub_committee/cac/index_en.htm, and the ESM contract, preamble, no. 11.

²¹ With exception of the bonds issued under English law.

²² For example, consider a country that wants to restructure three bonds with the same nominal value and a CAC majority of 75 percent, and that achieves a 95-percent majority on two bonds and a 70-percent majority on the third bond. Without aggregation, only the two first bonds can be fully restructured. 30 percent of the third bond would remain unstructured despite an aggregated participation rate of 86.7 percent.

Box 2

Key Elements in Bond Documentation

Collective Action Clauses (CACs)

Bonds containing CACs permit, at the request of the issuer, changing certain reserved matters with a qualified majority of investors for the entire body of creditors, including those who do not agree to the change. The reserved matters usually include terms of payment, such as the nominal value and interest of a bond, and also other fundamental points concerning the value of the bond, including date and place of payment, and place of jurisdiction. A typical CAC could, for example, allow a reduction of the nominal value for all creditors if at least 75 percent of a quorum of 50 percent of all investors agrees.

Equal Treatment Clauses (Pari Passu)

Pari passu ("equal footing") clauses promise an "equal" treatment of the various creditor classes within a defined group of debt types.¹ In a much-publicized order in the case of *NML Capital vs. Republic of Argentina*, a US court decided, however, that such clauses also imply pro-rata payments to all creditor classes. Thus, holdout creditors would receive the full value of their claims, as long as investors who participate in a restructuring get the full value of their new, reduced claims. However, the exact wording of the clause varies considerably between countries and consulting law firms.² Not all formulations impose an obligation to make pro-rata payments.

¹ L. Buchheit and J. Pam, "The Pari Passu Clause in Sovereign Debt Instruments," *Emory Law Journal* 53, 871-922 (2004); M. Wright, "Interpreting the Pari Passu Clause in Sovereign Bond Contracts: It's All Hebrew (and Aramaic) to Me," *Capital Markets Law Journal* (forthcoming).

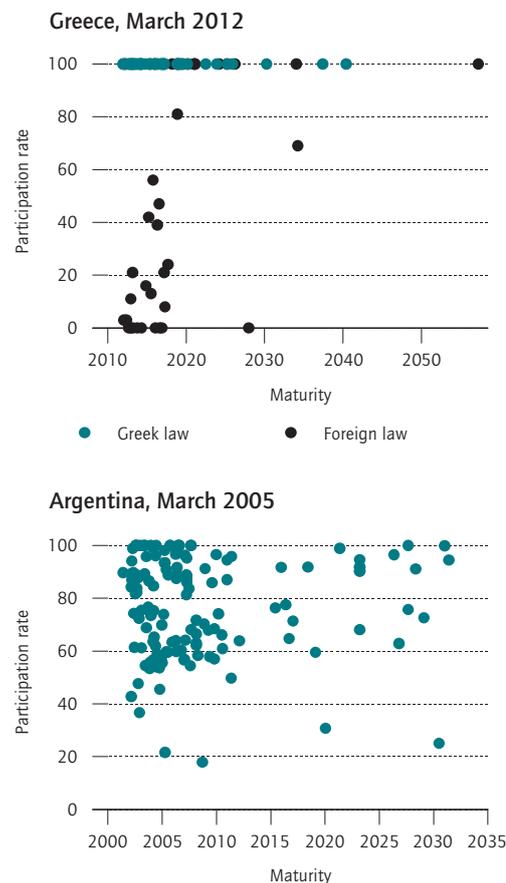
² M. Weidemaier, R. Scott, and M. Gulati, "Origin Myths, Contracts, and the Hunt for Pari Passu," *Law & Social Inquiry*, 38 (1), 72-105 (2013).

An additional problem is the large volume of debts currently outstanding in the euro area: since the Euro-CACs are only included in new bond contracts and are not included retrospectively in outstanding bonds, the entire debt will have to be refinanced again under the new conditions before the reform can fully take effect. The

Figure 3

Participation Rates in Previous Debt Restructurings

In percent



Sources: Zettelmeyer, Trebesch, and Gulati, *The Greek Debt Restructuring: An Autopsy*, CESifo Working Paper No. 4333, 2013; Schumacher, “Coordination Problems in Sovereign Debt Restructurings: Hold-outs and Litigation in Argentina,” (computer printout, Humboldt Universität zu Berlin, (2014).

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While bonds issued under Greek law (with aggregated CACs) achieved a participation rate of 100 percent, the participation rate for bonds issued under foreign law was significantly lower at 71 percent. Many Argentine bonds could also only be rescheduled at less than 75 percent in 2005.

remaining time to maturity of outstanding sovereign bonds from euro countries is, on average, almost seven years, and significantly longer in some countries: for instance, Greece, Ireland, Italy, and Spain currently have outstanding bonds with a time to maturity of at least 25 years.²³

²³ Average terms: ESCB, Eurostat, and national data; longest terms: Bloomberg.

Even though the costs of introducing CACs might initially seem low (see Figures 4 and 5), they can lead to higher interest costs under certain circumstances.²⁴ For bonds issued under domestic laws, governments could change the conditions retrospectively through legislation even without CACs.²⁵ Given the problems mentioned above and the potential costs, the question arises as to why the member states of the euro area have embarked on this reform in the first place. Some observers have argued that they mostly serve symbolic value and signal that future restructurings should continue to be organized ad hoc—not in the form of an institutional framework.²⁶

Opportunities within an Institutionally Restructured Euro Area

Since contractual changes for sovereign bonds to date have not been able to solve all coordination problems among creditors, additional precaution needs to be taken to make debt restructuring legally possible—that is to say, an insolvency regime should be introduced.

Numerous proposed designs for such a regime in the euro area have already been developed.²⁷ Recent suggestions include the PADRE plan,²⁸ the VIPS proposal,²⁹ and a proposal for a European Crisis Resolution Mechanism.³⁰ There are also discussions about introducing additional instruments that go beyond restructuring clauses and explicitly include converting fixed claims

²⁴ B. Eichengreen and A. Mody, “Do Collective Action Clauses Raise Borrowing Costs?,” *Economic Journal* (114) (2004): 247-264; M. Bradley and M. Gulati, “Collective action clauses for the Eurozone,” *Review of Finance* (2013) 1-58; A. Bardozzetti and D. Dottori, “Collective Action Clauses: How do they affect sovereign bond yields?,” *Journal of International Economics* (92) (2014): 286-303.

²⁵ Greece was able to retrospectively add CACs to its bonds using this method, see J. Zettelmeyer et al., “The Greek debt restructuring.” This might also have implications on the borrowing costs in times of crisis, see M. Chamon, J. Schumacher, and C. Trebesch, “Foreign Law Bonds: Can They Reduce Sovereign Borrowing Costs?” (computer printout, Humboldt Universität zu Berlin).

²⁶ A. Gelpern and M. Gulati, “The wonder-clause,” *Journal of Comparative Economics* (41) (2013): 367-385. See also M. Weidemaier and M. Gulati, “A People’s History of Collective Action Clauses,” *Virginia Journal of International Law* (54), (2014) 1-95.

²⁷ For an overview of the history of ideas, see Rogoff and Zettelmeyer, “Bankruptcy procedures for sovereigns.”

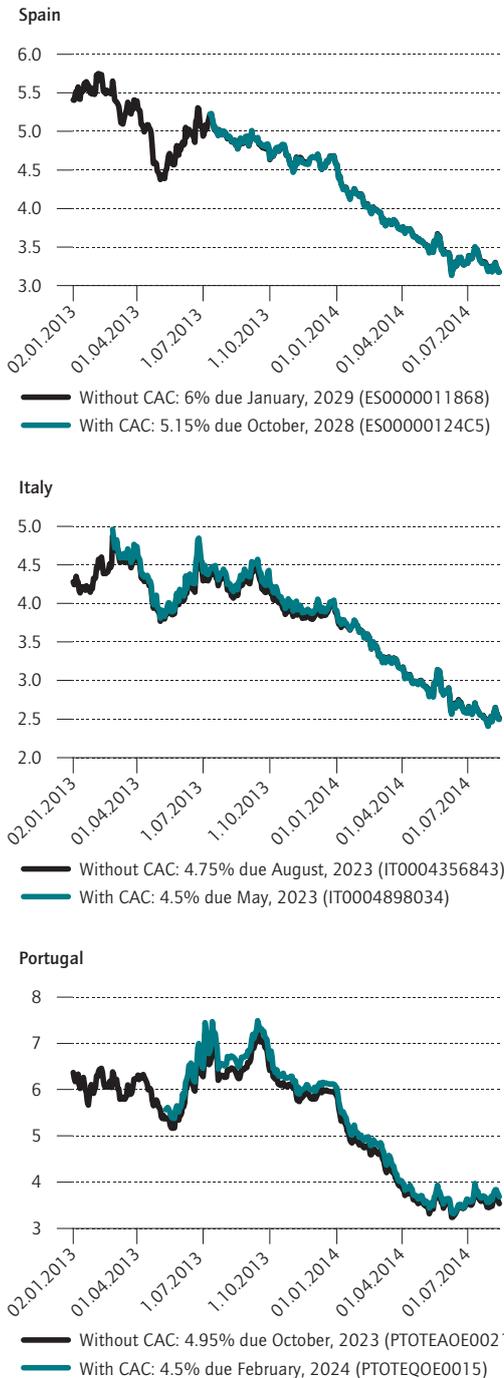
²⁸ P. Pâris and C. Wyplosz, “PADRE: Politically acceptable debt restructuring in the Eurozone,” *Geneva Special Report on the World Economy 3*, ICMB and CEPR (2014).

²⁹ C. Fuest, F. Heinemann, and C. Schröder, *A viable insolvency procedure for sovereigns (VIPS) in the Euro Area* (Mannheim: June 2014).

³⁰ F. Gianviti, et al., “A European mechanism for sovereign debt crisis resolution: A proposal,” *Bruegel Blueprint Series* (2010).

Figure 4

Returns on Bonds with and without CACs
In percentage points



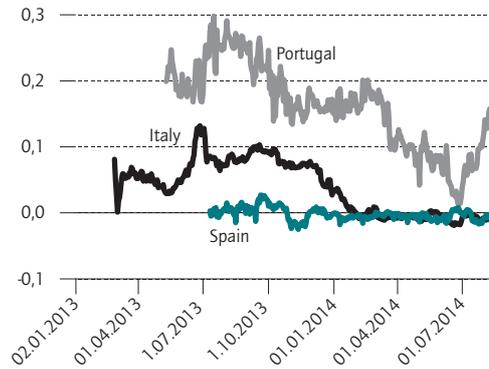
Sources: Bloomberg; calculations by DIW Berlin.

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Interest premiums on bonds with CACs are low in the euro area.

Figure 5

Interest Premium for Bonds with Restructuring Clauses
In percentage points



Sources: Bloomberg; calculations by DIW Berlin.

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Interest premiums on bonds with CACs are low in the euro area.

into liable capital.³¹ Automatically extending maturities might also be considered.³²

The current political and thematic debate on this issue has not yet been concluded. While the financial industry highlights the success of the contractual approach and expresses concerns about statutory restructuring regimes,³³ others have stressed the need for more institutional solutions particularly for the euro area.³⁴ A practicable compromise could be a reform proposal by the Committee for International Economic Policy and Reform (CIEPR), which would allow effective debt restructuring with minimum intervention.³⁵ The proposal is based on the idea of extending ESM regulations so as to give countries wide-ranging legal immunity. This would enable them to overcome the holdout problem in a restructuring. As a pre-condition, the ESM would attach different financing conditions depending on the

31 A. Mody, "Sovereign debt and its restructuring framework in the euro area," Bruegel Working Paper 2013/05.
32 M. Brooke, et al., "Sovereign default and state-contingent debt," Bank of England, Financial Stability Paper, no. 27; and M. Miller and D. Thomas, "Eurozone sovereign debt restructuring: Keeping the vultures at bay," Oxford Review of Economic Policy 29 (4) (2013): 745-763.
33 IIF, Principles for stable capital flows and fair debt restructuring: Report on implementation by the Principles Consultative Group (Washington, D.C.: 2013).
34 Christophe Paulus, A Debt Restructuring Mechanism for Sovereigns: Do we need a legal procedure? (Munich: 2010).
35 L. Buchheit, et al., "Revisiting sovereign bankruptcy," CIEPR report (October 2013).

debt level of the crisis country. In particular, a highly indebted member country with a sovereign debt to GDP ratio of more than 90 to 100 percent could only gain access to ESM funds if it imposes a sufficiently high debt haircut on its private creditors and, in addition, accepts a macro-economic adjustment program, as already stipulated in the existing ESM treaty.

The advantages can be summarized in three points. First, any insolvency delay would be prevented and the ESM strengthened as a bridge for liquidity bottlenecks. Second, the possibility of organized and preventative restructuring would reduce the economic costs of a debt crisis. Third, it would re-establish necessary market mechanisms counteracting the problem of excessive indebtedness in the euro area in advance.

Legislation Changes Could Prevent Blocking by Private Investors

The national economies of Europe and, in particular, the euro area are not only strongly financially integrated but also through with respect to inner-European trade. In addition to capital flows, trade revenues are frequently targeted for attachment by holdout investors.³⁶ Internal European capital and trade flows could be made immune from seizures by amending the ESM treaty for countries in a program.³⁷ A precedent case for such a measure took place in 2003: the restructuring of sovereign debts in Iraq, when the United Nations adopted a resolution which protected incomes from oil exports against seizures by private creditors.³⁸

Conditional on defaults, courts usually award full judgments to litigating creditors. The enforcement of such judgments, however, is often difficult and protracted.³⁹ This makes the option of rejecting a debt restructuring unattractive to many investors. The most recent interpretation of the *pari passu* clause in the lawsuit between Argentina and its creditors could change this trade-off substantially, however, since the blocking of payment flows offers holdout plaintiffs a relatively simple and, at the same time, effective leverage to enforce judgments or force countries into a settlement (see Box 2). Particularly in the euro area, with its strongly integrated pay-

ment flows, a blockade of this kind would provide compelling leverage.

This risk could be reduced through legislation changes in the financial centers of Europe to protect payment flows against blockades or seizures by investors. Belgium, headquarters of clearing company Euroclear, amended the relevant legislation ten years ago.⁴⁰ Similar legislative amendments—particularly in the UK, Luxembourg, France, and Germany—would minimize the risk substantially.⁴¹

Contractual Changes and Improved CACs

In a much-publicized reform proposal, representatives of the financial industry body International Capital Markets Association (ICMA) recommended changes to two key elements of government bond documentation in August 2014.⁴² In addition to a stronger aggregation feature in CACs, a new formulation of the *pari passu* clause is supposed to exclude the interpretation of pro-rata payouts to exchange and holdout creditors.

The suggested CAC formulation is similar in many respects to the Euro-CACs, but contains an additional, third voting option.⁴³ This option allows a restructuring to be imposed on all creditors if an aggregate majority of 75 percent of the total nominal value of the outstanding debt agrees to it. Even if individual bond series refuse the proposal completely, investors cannot prevent an exchange, as long as they do not represent at least 25 percent of the total debt.

A *pari passu* clause similar to the recent ICMA proposal, which explicitly excludes a pro-rata payment in the event of a debt restructuring would result in a significant mitigation of the risk of payment flow seizures or blockades.⁴⁴ The current practice of employing im-

³⁶ J. Schumacher et al., "Sovereign defaults in court."

³⁷ L. Buchheit, M. Gulati, and I. Tirado, "The Problem of Holdout Creditors in Eurozone Sovereign Debt Restructurings," ssrn.com/abstract=2205704.

³⁸ L. Buchheit, et al., "Revisiting sovereign bankruptcy"; see also U.N. Resolution 1483.

³⁹ J. Schumacher et al., "Sovereign defaults in court"; see also G. Foster, "Collecting from Sovereigns" *Arizona Journal of International & Comparative Law* 25 (2008): 665-731.

⁴⁰ See Buchheit, "Revisiting sovereign bankruptcy" 31-32. The relevant legislation amendment provides that „Any cash settlement account [...] as well as any cash transfer, through a Belgian or foreign credit institution to be credited to such cash settlement account, cannot be attached, [...] by any means by a participant [...], a counterpart or a third party."

⁴¹ Euroclear's major European competitors, such as LCH.Clearnet and Eurex, are also based in these countries.

⁴² www.icmagroup.org/resources/Sovereign-Debt-Information/.

⁴³ The first two options are (a) bond-specific voting with a majority of 75 percent (identical to the EuroCACs) and (b) *two limb* voting with a 66 2/3 majority in aggregate debt and a 50-percent majority in each individual bond (lower majority requirements than for EuroCACs). See ICMA, Standard Aggregated Collective Action Clauses for the Terms and Conditions of Sovereign Notes. www.icmagroup.org/assets/documents/Resources/ICMA-Standard-CACs-August-2014.pdf.

⁴⁴ ICMA (2014): Standard *Pari Passu* Provision for the Terms and Conditions of Sovereign Notes. www.icmagroup.org/assets/documents/Resources/ICMA-Standard-Pari-Passu-Provision-August-2014.pdf. „The Issuer shall have no

proved collective action clauses is inconsistent. While Armenia, Belize, and Italy, inter alia, have amended the legal structure of their bonds to a less captious formulation,⁴⁵ many other countries have not made any changes.⁴⁶ A more consistent formulation in which pro rata payment of creditors is not required would significantly reduce the risk of adverse interpretations as in the Argentine case in future debt restructurings.

Conclusion

Given that public debt in the euro area is still high, future debt restructurings cannot be ruled out. Due to existing coordination problems among private creditors, such sovereign debt restructurings also come with significant inefficiencies. This applies in particular to the euro area with its strong economic and financial integration.

The reforms carried out so far are not sufficient to prevent these inefficiencies. Easy-to-implement institutional changes, in particular protecting trade flows and institutions of the payment system against blockades by private creditors, should therefore be combined with more extensive contractual amendments with improved CACs. Introducing stronger collective action clauses with aggregated voting thresholds and relaxing the pari passu equality clause might significantly reduce coordination problems among creditors, thus making sovereign debt restructurings easier in the future. A more far-reaching and possibly institutional restructuring framework for states in the euro area is desirable and should be implemented in the course of amendments to the ESM Treaty.

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JEL: D78, F34, K12, K33

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obligation to effect equal or rateable payment(s) at any time with respect to any such other External Indebtedness and, in particular, shall have no obligation to pay other External Indebtedness at the same time or as a condition of paying sums due on the Notes and vice versa."

⁴⁵ For Italy, see www.creditslips.org/creditslips/2013/04/italys-pari-passu-scrubbing.html; the different formulations can be found in the Fiscal Agency Agreements from 2003 and 2013, www.sec.gov/Archives/edgar/data/52782/000115697303000912/u46221exv99wa.htm and www.sec.gov/Archives/edgar/data/52782/000119312513038559/d475398dex99a.htm. For Armenia, see documentation for bond XS0974642273; Belize, USP16394AG62.

⁴⁶ Among others, Costa Rica, Ivory Coast, Mongolia, Rwanda, Serbia, and Ukraine, ftalphaville.ft.com/2012/12/06/1298193/all-of-this-has-happened-before-and-will-happen-again-sovereign-pari-passu-edition/.

Safe Bonds for the European Monetary Union: Strengthening Bailout Ban with More Robust Financial System

By Philipp Engler and Christoph Große Steffen

The cost of state bankruptcy in the euro area is incalculable due to the repercussions for the financial system. As a result of contagion effects, there is a risk that the entire Monetary Union could be pushed into deep recession. This forces euro area member states to implement rescue packages during periods of crisis, at a high cost to taxpayers. The bailout policy adopted during the most recent crisis was an indication that sovereign debt in the euro area would be subject to joint liability. This temporarily eliminated incentives for national budgetary discipline.

On this basis, it is argued that enhancing the institutional framework of the euro area in the long term by issuing common bonds would alleviate existing distortions of fiscal incentive effects in the euro area. Such a “safe haven” for the euro area could make a major contribution to stabilizing the financial system during periods of crisis. The positive impact this would have on the banking system could reduce the indirect costs of restructuring government debt which, in turn, would make restructuring debt from public debtors in the euro area economically feasible. This would strengthen the no-bailout rule which, again, is likely to result in an increasingly risk-based approach to interest on national debt. With this in mind, limited joint liability under strict conditions would be a welcome measure since it takes advantage of market incentives to cut public spending and consequently helps alleviate the problem of over-indebtedness in the euro area in the long term.

As a prerequisite for creating common bonds, binding fiscal rules must be introduced in order that some sovereignty rights can be delegated to a central fiscal authority. In the short term, therefore, the required conditions for common bonds are not in place.

The destructive impact of a downward spiral triggered by the risks of sovereign debt, a destabilized banking sector, and the real economic costs of a credit crunch became evident during the euro crisis.¹ Due to the abrupt disintegration of financial markets along national borders, the Monetary Union was in danger of breaking up in 2011/2012. What was previously unthinkable—government insolvency within the Monetary Union—became an acute reality for Greece in 2010. The conventional practice used previously of addressing government debt crises through ad hoc negotiations with all the creditors involved was not directly applicable in this specific situation within the euro area. Only in March 2012, around two years after Greece lost access to the capital market, was the country’s debt restructured.² Due to its high cost, the restructuring option was put on the backburner in favor of ad hoc rescue packages provided by the countries of the Monetary Union. Due to the risk of contagion effects, the member states felt coerced into a policy of providing liquidity assistance on the basis of bilateral contracts or the European Financial Stability Facility (EFSF) which, in turn, led to staggered transfer payments. Further, the European Central Bank (ECB) was prompted to take extraordinary risks by implementing unconventional measures such as granting emergency credits (Emergency Liquidity Assistance, ELA) to failing banks in crisis countries, purchasing government bonds on the secondary market (Securities Markets Programme, SMP), and pledging to prevent the collapse of the euro area (Outright Monetary Transactions, OMT).

The present article argues that the introduction of common bonds in the euro area, combined with other fundamental institutional reforms in the Monetary Union,

¹ The present report is part of a DIW Economic Bulletin series addressing various elements of a strategy for institutional reform of the euro area. See F. Fichtner, M. Fratzscher, M. Podstawski, and D. Ulbricht, “Making the Euro Area Fit for the Future,” DIW Economic Bulletin, no. 9 (2014).

² J. Zettelmeyer, C. Trebesch, and M. Gulati, “The Greek debt restructuring: an autopsy,” *Economic Policy* (2013): 515–563.

would mitigate a crisis-driven downward spiral thus rendering the associated bailout policy unnecessary.

Contagion through a Collateral Channel during the Crisis

The loss of confidence in securitized mortgages on the US real estate market led to an increasing scarcity of safe and highly liquid assets.³ The option of using government bonds to secure financing explains their growing importance in the private banks' process of credit creation.⁴ In Europe, the lion's share of secured interbank loans is backed by European government bonds,⁵ which is why government bonds have become increasingly relevant for the process of credit creation in the European banking system.

The systemic relevance of government bonds became apparent in 2009, at the start of the Greek debt crisis. The financial markets became aware of the risks of government financing in some euro area countries which had been underestimated until then. The subsequent increase in interest rate differentials on government bonds spread to the national banking systems in those crisis countries⁶ which demonstrated a strong home bias for their government bond portfolios.⁷

As a result, the sovereign debt crisis had an asymmetrical impact on the euro area member states, which increased the risk of the Monetary Union collapsing. This was particularly apparent in 2011: interest on repo transactions that were secured by European government bonds drifted apart significantly (see Figure 1). While transactions backed by German or French government bonds were still being conducted below the EONIA swap rate, the interest on repo transactions secured by Italian and Spanish bonds in particular developed in the opposite direction. This correlation is referred to as the collateral channel in the following.

By dramatically increasing liquidity supply, the ECB was able to counteract the rise in financing costs and the decline in financing options for numerous banks in the crisis countries (see Figure 2).⁸ However, it was not able to prevent credit conditions among member states of the Monetary Union drifting apart. In 2010/2011, a positive correlation between interest rates on private and public credit was observed in the crisis countries, whereas this was not the case in the core countries of the euro area (see Figure 3).

Contagion from the public sector to the banking sector is evidence of the systemic dimension of the crisis.⁹ Accordingly, the countries suffering the strongest decline in economic growth from the crisis also experienced a crisis of confidence (see Figure 4).

Creation of Safe Bonds in Euro Area Makes Economic Sense

As the analysis of the model developed by Engler and Große Steffen¹⁰ demonstrates (see Box 1), even with the strong disciplining effect of the threat of the real economic costs of a debt restructuring in economies with developed financial markets, debt crises can never be completely avoided as a series of negative shocks can push states to their debt limits. One reason for this is the collateral channel on the European interbank market, the impact of which emerges as a result of the problem of over-indebtedness in combination with negative shocks in the Monetary Union.

It is therefore essential that, in the future, the European Monetary Union makes better use of the potential disciplining role of the financial markets to prevent a further rise in debt levels in the euro area. This is particularly needed, since contractual agreements to limit indebtedness as the European Fiscal Compact do not seem to bear enough power to enforce national budgetary discipline. To meet this objective, it is desirable to have a more differentiated pricing of government bonds in the euro area. However, this can only be achieved if there is a realistic possibility of a debt haircut and the no-bailout clause is taken seriously again. This is, however, currently not the case due to the way the European financial markets are organized: because of the negative im-

3 C. Große Steffen, "Knappheit sicherer Anleihen? Neue Herausforderungen nach der Krise," DIW Roundup, no. 3 (2014), www.diw.de/documents/publikationen/73/diw_01.c.434488.de/diw_roundup_3_de.pdf.

4 S. Manmohan and P. Stella, "Money and collateral," IMF Working Paper, WP/12/95 (2012); ICMA, Collateral is the new cash: The systemic risks of inhibiting collateral fluidity (International Capital Market Association, Zurich: 2014).

5 ICMA, "European repo market survey: Number 25," conducted in June 2013 (International Capital Market Association, Zurich: 2013).

6 BIS, "Impact of sovereign credit risk on bank funding conditions," Committee on the Global Financial System (CGFS) Papers, no. 43 (June 2011); A. van Rixtel and G. Gasperini, "Financial crises and bank funding: Recent experience in the euro area," BIS Working Papers, no. 406 (2013).

7 S. Arslanalp and T. Tsuda, "Tracking global demand for advanced economy sovereign debt," IMF Working Paper, WP/12/284 (2012).

8 D. Giannone et al., "The ECB and the interbank market," ECB Working Paper Series, no. 1496 (November 2012).

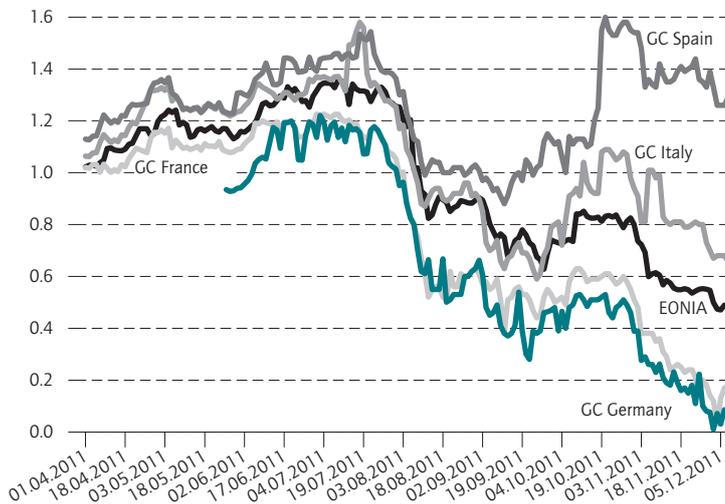
9 Further, a reverse contagion from banks to governments was also observed. See J. Ejsing and W. Lemke, "The Janus-headed salvation. Sovereign and bank credit risk premia during 2008-2009," *Economics Letters* (110) (2011): 28-31.

10 P. Engler and C. Große Steffen, Sovereign risk, interbank freezes, and aggregate fluctuations (2014), ssrn.com/abstract=2489914.

Figure 1

Interest Rates on Secured Interbank Loans

In percentage points



Source: Bloomberg.

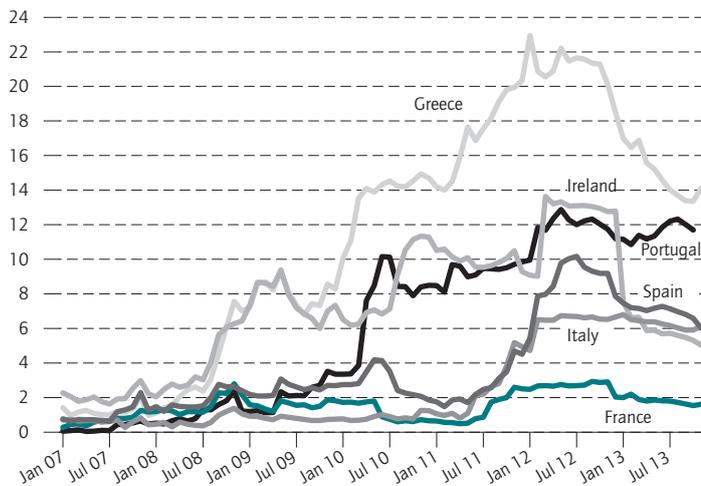
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Interest rates on standardized securities (General Collateral repo rates) diverged during the recent sovereign debt crisis.

Figure 2

Eurosystem Lending to Credit Institutions

In percentage of national central banks' total assets



Source: National central banks.

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Central bank money replaced private credit creation.

part of a debt haircut on the banking sector, the threat of debt restructuring seems implausible from the outset.¹¹ The bailout policy implemented through the EFSF/ESM and the ECB affirms this impression.

The creation of safe bonds, i.e., default-free bonds within a restructured institutional framework for European Monetary Union should help better balance ex ante and ex post transfer payments within the euro area. Common bonds within the Monetary Union have three advantages: first, the option, and indeed necessity, of effectively mitigating fiscal policy risks; second, strengthening financial market stability by improving financial and capital market integration and making it more robust; third, by providing a secure investment opportunity, commonly issued bonds strengthen the position of the euro as an international reserve currency.¹²

Eurobond Debate Needs To Be Less Ideological

During the debt crisis, two camps formed each with a different view on the Eurobond proposals. On the one hand, there are the resolute opponents of any form of commonly issued bonds. The main argument against Eurobonds raises legitimate concerns about the incentive effects: a country which is not obliged to pay back its own debts in an emergency is unlikely to implement sound budgetary policy.¹³ Further, there are also constitutional misgivings that a fiscal union or European federation would be required for Eurobonds to be introduced.¹⁴

On the other hand, there are the proponents of Eurobonds who have presented numerous proposals and consider that common bonds make economic sense. They argue that legal prerequisites can be achieved in the short or medium term. The differences between these proposals primarily relate to the extent of liability which ranges from full mutualization of all national debts to a synthetic bond with no de facto mutualization.

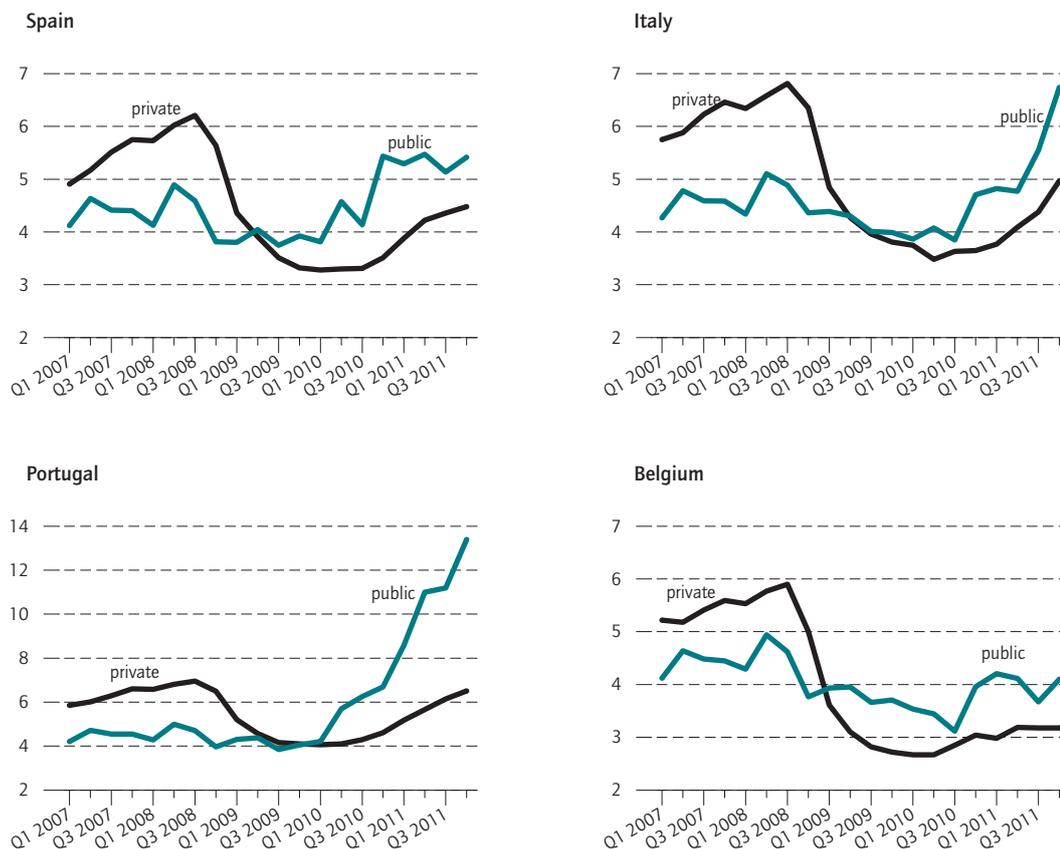
¹¹ Greece restructured its debts in February 2012 and is therefore an important exception to this. However, at the time, this had barely any impact on the credibility of the bailout ban or on the development of an appropriate risk-adjusted rate of interest in the euro area. This, in turn, suggests that the markets regard Greece as an isolated case.

¹² In particular, financial market stability is likely to emerge as an increasingly important factor in defining the quality of a currency. See L. Goldberg, S. Krogstrup, J. Lipsky, and, H. Rey, Why is financial stability essential for key currencies in the international monetary system? (July 26, 2014), voxeu.org.

¹³ See, for example, H.-B. Schäfer, "Eurobonds—Gruppenhaftung im Clan bedroht die Bürgergesellschaft und den Sozialstaat," *Wirtschaftsdienst* 91/9 (2012): 609–612; and also M. Schütte, N. Blanchard, M. Hüther, and B. Lucke, "Eurobonds: Kann eine Unterteilung in Blue bonds und Red bonds das Risiko für die Euroländer minimieren?," *Ifo Schnelldienst* 4 (2012).

¹⁴ F. Mayer and C. Heidfeld, "Verfassungs- und europarechtliche Aspekte der Einführung von Eurobonds," *Juristische Wochenschrift* 7 (2012): 422–427.

Figure 3

Private and Public Financing CostsIn percentage points¹

¹ Interest on 10-year government bonds and interest rates on loans to non-financial corporations with maturities up to one year. Sources: ECB; Thomson Reuters Datastream; calculations by DIW Berlin.

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The correlation between private and public financing costs increased sharply in the crisis countries.

Irrespective of whether the euro area aims to become a full fiscal union or not, the crisis has made it clear that the Monetary Union requires better fiscal policy coordination. In order to ensure this, Brussels needs to be granted greater rights to intervene in national budgets than they have to date.¹⁵

In this context, the debate on the introduction of Euro-bonds, which has so far been very ideological, appears to require a more differentiated view that allows Euro-bonds to contribute to an improved institutional set-

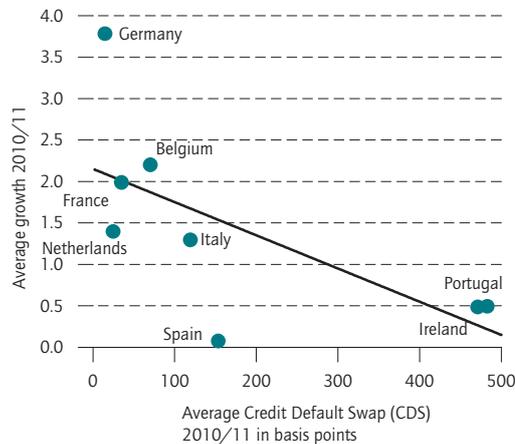
ting in the euro area. Once effective fiscal coordination, at least in the sense of a partial fiscal union, has been achieved, this provides the economic precondition for a gradual introduction of common bonds such that their various positive effects can be utilized by the Monetary Union in the long term in order to deepen capital market integration.

Since there is currently no partial fiscal union, the pre-conditions for introducing common bonds are not yet in place. Even in the short term, political barriers could prevent rapid implementation, thus presenting member states with the dilemma of how to implement the bailout ban in the short and medium term. Even if the European Union were to move toward becoming a political union in the form of a federation in the long term,

¹⁵ F. Heinemann, M.-D. Moessinger, and S. Osterloh, "Feigenblatt oder fiskalische Zeitenwende? Zur potenziellen Wirksamkeit des Fiskalvertrags," *Integration 3* (2012): 167-182.

Figure 4

Correlation between Risk of Sovereign Default and Growth



Sources: Thomson Reuters Datastream; calculations by DIW Berlin.

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The systemic dimension of the crisis: there is a strong correlation between low growth and high risk premiums in the peripheral countries.

a non-liability clause would be required (such as in the US and Switzerland).¹⁶

Eurobond Proposals

The solutions discussed to date can be divided into two groups:¹⁷ at one end of the spectrum are the “real” Eurobonds that envisage extensive mutualization of existing sovereign debt. For the most part, proposals for this type of Eurobond emerged in the euro area during the sovereign debt crises. Thus, at the end of 2010, the President of the Eurogroup at the time Jean-Claude Juncker and the Italian Finance Minister at the time Giulio Tremonti called for the introduction of Eurobonds.¹⁸ The aim was for them to finance national budgets and give the financial markets a sign of stability for the short term to bring about an end to the crisis.

With real Eurobonds, the participating countries assume full joint liability for the debts of the remaining euro area countries. In the event that any individual par-

ticipant becomes insolvent, the partner countries would be obliged to assume unlimited responsibility for these payments. From the creditors’ perspective, this significantly reduces the risk of default for individual countries. However, in certain circumstances, this would increase the risk of joint default.¹⁹ Further, joint and several liability for an entire national debt burden also introduces the moral hazard of reduced budgetary discipline for the public finances of individual member states because the incentive effects of the bond markets are either limited or entirely eliminated. Eurobonds were proposed as a substitute for structural reforms at the height of the crisis, which alone should be reason enough to firmly reject them in this form.

One solution to this dilemma is not to mutualize all government debt. Von Weizsäcker and Delpla²⁰ therefore proposed what are known as “blue bonds” which have a ceiling of 60 percent of the GDP of each member state and are issued under joint liability. The debtor country then has the sole liability for any debt in excess of this 60-percent ceiling (“red bonds”). These red bonds would have a higher risk of default as they would be treated as junior bonds in the event of insolvency.²¹ Risk-adjusted pricing would have a stronger disciplining effect on the issuing governments. However, blue bonds would be regarded as safe due to their joint liability and their primacy in the event of insolvency. They could therefore be used as collateral in the banking sector.²²

Synthetic Eurobonds might be a viable alternative to the real Eurobonds proposal, the most popular example of which are European Safe Bonds (ESBies).²³ ESBies involve no mutualization whatsoever and are more about using securitization to develop financial products from existing government debt. Banks would only be permitted to purchase the safe tranche (ESBies) to sever the connection between government and bank risks. The primary aim of synthetic Eurobonds is neither to finance national budgets nor to protect a country in financial

¹⁶ See also the opinion which diverges from that of the Council of Experts by V. Wieland, Council of Experts Annual Report 2013/2014, no. 265; and also M. Bordo, A. Markiewicz, and L. Jonung, “A fiscal union for the Euro: Some lessons from history,” NBER Working Paper 17380 (2011).

¹⁷ For a detailed discussion on the proposals, see S. Claessens, A. Mody, and S. Vallée, “Paths to Eurobonds,” IMF Working Paper, WP/12/172 (2012).

¹⁸ J.-C. Juncker and G. Tremonti, “E-bonds would end the crisis,” Financial Times, December 5, 2010.

¹⁹ W. Wagner, “Eurobonds are likely to increase the risk of joint defaults in the Eurozone,” (December 8, 2011), vox.eu.org.

²⁰ J. Von Weizsäcker and J. Delpla, “The blue bond proposal,” Bruegel Policy Brief 2010/03 (2010).

²¹ Subordinated bonds are those whose buyers have to bear the first losses in the event of payment default, while buyers of senior bonds are only liable should higher losses be incurred.

²² A similar proposal for common bonds with a short term was made by T. Philippon and C. Hellwig, “Eurobills, not Eurobonds,” (December 2, 2011), vox.eu.org.

²³ See Euronomics group, “European Safe Bonds (ESBies)” (2011), www.princeton.edu/jrc/files/esbie_pr.pdf; and also T. Beck, W. Wagner, and H. Uhlig, “Insulating the financial sector from the crisis: Eurobonds without public guarantees,” (September 17, 2011), vox.eu.org.

difficulty from speculative attacks, but to diminish the impact of a debt crisis on the banking system.

Integrating Common Bonds into Europe's New Institutional Framework

Safe bonds can only be considered safe if investors have confidence in them, even during times of crisis. From an institutional perspective, this is something that a European debt agency could facilitate: the agency would receive a guarantee from the participating states for the entire portfolio of commonly issued bonds. The national financial institutions would honor their debts bilaterally with the European debt agency, according to their share of the issue volume.

Further, the following issues also need to be addressed: first, the moral hazard needs to be reduced; second, the legal prerequisites need to be met; and third, institutional consistency within the Monetary Union needs to be guaranteed. There are a range of options to alleviate the central problem of moral hazard arising from common bonds. First, efforts to implement policy measures to ensure compliance with budgetary discipline should be intensified. It is hoped that, in the process of introducing the required fiscal coordination within the euro area, certain sovereignty rights will be delegated to Brussels in the future, at least on a temporary basis.²⁴ Although the negative experience of the Stability and Growth Pact gives rise to reasonable doubt as to the efficiency of policy mechanisms, as a normative anchor, they do, however, provide a desirable complement to market-based instruments. Moreover, at least a partial fiscal union needs to be established. Member states could temporarily cede certain sovereignty rights to Brussels as soon as there is any indication of financing bottlenecks, for example. It would also be possible to come to an agreement that, in the event of a payment default for common bonds, a country would be obliged to participate in a macroeconomic adjustment program, which is already a prerequisite for ESM loans today. The resulting temporary renunciation of sovereignty rights should reduce the negative incentive to unjustifiably take advantage of a partner country's solvency.

Finally, the ceiling for common bonds should be set considerably lower than 60 percent of GDP to reduce contagion effects between countries. The threshold for common bonds should thus be relatively low; 25 percent of a country's GDP (as an average over the previous five years), for example. This represents a reference value to

guarantee a sufficiently liquid market. A strict limit is essential for the credibility of the mechanism, particularly during the initial phase. For example, if a 25-percent ceiling were set for common bonds, they would exceed already today the existing stock of German federal government bonds. Figure 5 shows that the portfolio of safe bonds in Europe could be significantly expanded in the medium term. First, this is a result of the consolidation of public budgets in Germany due to the introduction of the debt brake. Second, linking bonds to GDP in the euro area is a dynamic component that would contribute to the expansion of a portfolio of common bonds in the euro area in the event of economic growth. In the medium term, this would facilitate the creation of the most important bond market in the euro area and the second most important market worldwide.

The legal basis needs to be examined on two levels. First, there are the European treaties and the German Basic Law which impose strict limits for the structure of bonds with joint liability.²⁵ Second, clarity is required as to whether, in the event of a liability case, common bonds should be treated as senior or whether they are on equal footing with national bonds (*pari passu*).

A *pari passu* clause results in greater contagion effects since a selective payment default of a country in a debt crisis would trigger immediately the joint liability for commonly issued bonds. As a result, the *pari passu* clause offers a lower interest rate on nationally issued debt securities since, in the event of debt restructuring, the expected recovery value increases. In contrast, government bond purchases as part of the ECB's SMP program have demonstrated that seniority clauses increase the risk of default for the junior creditors and consequently have a destabilizing impact on the bond markets.²⁶ Thus, a seniority clause could also give rise to political concerns on the part of the more heavily indebted member states. Given this background, and in terms of achieving a desirable insurance effect, it would be easier and more sensible to reach an agreement on a *pari passu* regulation with common bonds than on strict seniority of the remaining outstanding national debt.

At the same time, the creation of a common bond should always be viewed as a complementary measure to other reform efforts in the European Monetary Union. To

²⁵ Mayer and Heidfeld, "Verfassungs- und europarechtliche Aspekte."

²⁶ The IMF also conducted a critical evaluation, see IMF, "Euro Area Policies: 2012 Article IV Consultation," Selected Issues Paper, Annex: Valuation of sovereign bonds with ECB senior creditor status (2012). There is also empirical evidence of the impact of an increase in senior creditors in crisis countries. See S. Steinkamp and F. Westermann, "On creditor seniority and sovereign bond prices in Europe," Working Papers 92 (Institute of Empirical Economic Research, 2012).

²⁴ H. Basso and J. Costain, "Fiscal delegation in a monetary union with decentralized public spending," Bank of Spain Working Paper, no. 1311 (2013).

Box 1

Model Analysis

The theoretical model analysis by Engler and Große Steffen¹ is based on a Dynamic Stochastic General Equilibrium Model (DSGE) of a small open economy.² In essence, this analysis expands on the standard model in two ways.

First, the model maps heterogeneous banks exchanging loans via an interbank market. This process is not without frictions. The banks in the model are subject to financing restrictions attributed to imperfect markets. To a certain extent, these financing restrictions can be reduced if banks pledge government bonds as collateral in order to obtain loans on the interbank market. The implications for an optimal government debt policy have already been analyzed in previous studies.³ However, these studies do not take account of the increase in default risk that occurs as a result of an excessively sharp rise in government debt, or in the event of a major macroeconomic shock such as during the European debt crisis.

Therefore, the second difference between this framework and the standard model is the endogenous evolution of default risk of government bonds within the framework of an optimal default decision.⁴ In the present model, sovereign default leads to a collapse of the interbank market bringing a credit crunch and deep recession immediately in its wake. These costs have a disciplining effect on the government and increase the probability of debt repayment. This structural interpretation links the conditions on the interbank markets with the government's fiscal policy decisions.

¹ Engler and Große Steffen, *Sovereign risk, interbank freezes, and aggregate fluctuations* (2014), ssrn.com/abstract=2489914.

² E. Mendoza, "Real business cycles in a small open economy," *American Economic Review* (81)4 (1991): 797-818.

³ M. Woodford, "Public debt as private liquidity," *American Economic Review* (80)2 (1990): 382-388.

⁴ The strategic payment default follows the seminal model of J. Eaton and M. Gersovitz, "Debt with potential repudiation: Theoretical and empirical analysis," *Review of Economic Studies* (48)2 (1981): 289-309.

Model Results

In attempting to establish the optimal fiscal policy, the government is faced with the problem that it is desirable, ex ante, to accumulate debt. If the bonds are acquired by the banks, they are capable of relaxing financing restrictions and thus stimulating private lending.

However, should the government bonds themselves be threatened by sovereign default, a trade-off arises: then the threat of a self-reinforcing mechanism between sovereign risk and financing restrictions in the private sector emerges. Consequently, due to the role played by government bonds in the banking sector, sovereign debt crises acquire a systemic dimension which spreads throughout the entire economy. Moreover, ex post, they are associated with high macroeconomic costs. In the event of a government being hit by a disorderly restructuring, government bonds can account for up to 20 percent of GDP according to a calibrated model with data from Spain (see Figure 1). A key element of the model findings is that these costs depend on productivity development and consequently also the state of the business cycle (see Figure 2). In normal economic circumstances, the costs of a payment default are very high, due to the economy's borrowing requirements. However, during a deep recession, the costs fall sharply in line with the declining demand for credit and the reduced importance of the interbank market. This is, inter alia, the result of the amplification mechanism between sovereign default risk and the banking sector's financing costs which further reduce macroeconomic production during a recession, thereby also further reducing the costs of an imminent credit crunch in the event of sovereign default. In any case, this downward spiral involves high economic costs, whether due to the cost of a debt haircut or as a result of tightening financing conditions to avoid a debt haircut.

Assessment of Model Findings

The model is calibrated for the quantitative analysis using Spanish data for the period from 2000 to 2011. Model simulations show that sovereign debt crises are extremely rare events. This can be explained by the fact that the cost implications of sovereign default due to a

this end, first, the banking union and regulatory requirements must be developed further, and second, the op-

tion of an orderly sovereign debt restructuring must be created within the Monetary Union.²⁷

²⁷ Each of these topics are analyzed in separate reports published as part of this series. See F. Bremus and C. Lambert, "Banking Union and Bank

credit crunch on the interbank market have a significant disciplining effect on the government. Therefore, the literature frequently portrays these costs as useful since, under normal circumstances, they reduce interest on government bonds.⁵

At the same time, the implied feedback loop causes the inefficiencies and costs associated with ballooning costs of an unordered sovereign default. This is a major difference between the crisis in the financially advanced euro area and the debt crises in emerging countries where it was possible to implement an ad hoc negotiated solution with the involvement of creditors.⁶ Moreover, we have to contrast the ex ante increase in efficiency resulting from the disciplinary effect with the equally ex ante real economic costs of the amplification mechanisms between government risk and financing conditions: this provides a retrospective explanation for the strategy introduced by European decision-makers to commit to a bailout policy. Although this policy has high cost implications, in these circumstances, the alternative solution would have been significantly more costly.⁷

The model analysis suggests that government debt policy should take greater account of the liquidity effect of public spending. This means that the problem of over-indebtedness should be avoided so as to prevent any doubts about the sustainability of public debt. In principle, due to their high solvency, government bonds would therefore be able to guarantee bank financing and also corporate lending in the real economy, even during serious recessions when collateralization becomes more important. As a result, the ex ante costs from the collateral channel in the model within a downward spiral reinforcing the economic cycle during a recession would not occur in the first place.

⁵ M. Dooley, "International financial architecture and strategic default. Can financial crises be less painful?," Carnegie-Rochester Conference Series on Public Policy (2000): 361-377.

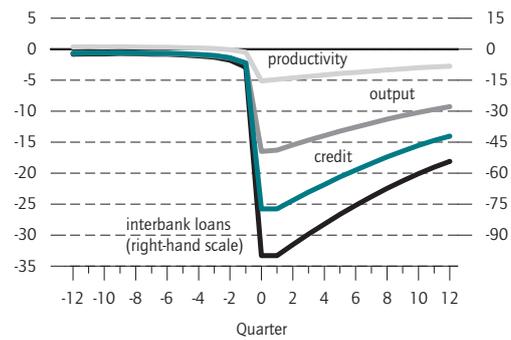
⁶ U. Panizza, F. Sturzenegger, and J. Zettelmeyer, "The economics and law of sovereign debt and default," Journal of Economic Literature (47)3 (2009): 651-698.

⁷ L. Buchheit et al., "Revisiting sovereign bankruptcy," CIEPR Report (Brookings Institution, 2013).

Figure 1

Simulated Sovereign Default

Deviation from long-term trend in percent (simulation averages)



Source: Engler and Große Steffen, *Sovereign Risk*.

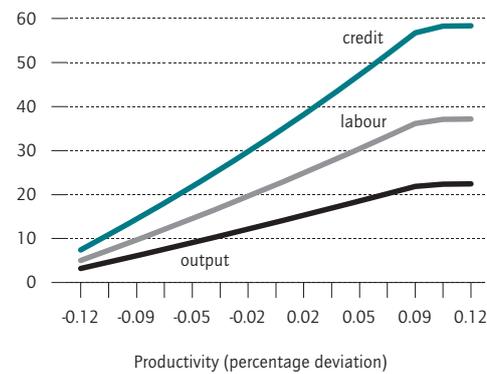
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The ex post costs of sovereign default resulting from a credit crunch can be up to 20 percent of GDP.

Figure 2

Costs of Sovereign Default

Percentage loss conditional on a debt haircut



Source: Engler and Große Steffen, *Sovereign Risk* (2014).

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The costs of a sovereign default are particularly low during a recession and make a debt haircut more likely.

Furthermore, it is essential to define the function of the

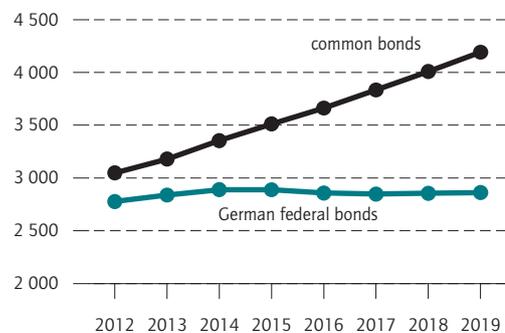
Regulation: Banking Sector Stability in Europe," DIW Economic Bulletin, no. 9 (2014); and C. Große Steffen and J. Schumacher (forthcoming) DIW Economic Bulletin, no. 10 (2014).

ESM and the ECB's OMT declaration with reference to bonds that continue to be issued nationally. Otherwise, there is a risk that the bailout ban will be lifted through the backdoor, as is evident by market expectations in the present institutional setting. Consequently, for approxi-

Figure 5

Issue Volumes

In billions of euros



Sources: IMF World Economic Outlook (WEO) Database; calculations by DIW Berlin.

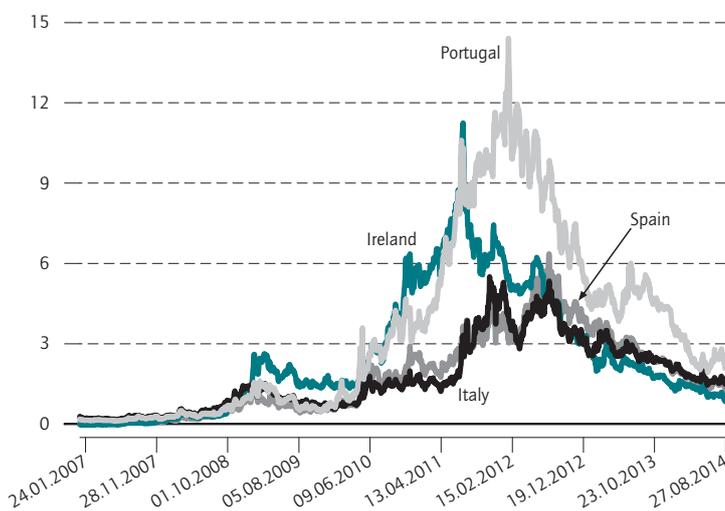
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In the long term, common bonds amounting to 25 percent of GDP in the euro area would exceed the market for German government bonds in terms of volume.

Figure 6

Bond Spreads over German Bonds

In percentage points with maturity of 10-years



Sources: Thomson Reuters Datastream; calculations by DIW Berlin.

© DIW Berlin

Interest on government bonds currently provides no incentive for debt consolidation.

mately two years now, the interest on government bonds in the euro area has been converging which shows that risk premiums do not offer any incentive to the crisis countries to reduce their debt levels (see Figure 6). The ESM's function should focus on the requirements of national liquidity squeezes to continue fending off specu-

lative attacks on national government debt. However, more rapid decision-making processes are also needed for cases of national insolvency to actually be resolved by restructuring rather than by liquidity assistance from the ESM.²⁸ Accordingly, it must be considered whether the OMT pledge should only be applied to commonly issued bonds, thus providing monetary recourse exclusively for this market segment.²⁹ In this case, the prohibition of monetary financing according to Article 123 of the Treaty on the Functioning of the European Union (TFEU) can be adhered to more strictly than it is to date. Further, in its judgment on the OMT, the German Constitutional Court also determined that due to, inter alia, the selectivity of the program which specifically purchases government bonds from ailing governments, the ECB had exceeded its mandate.³⁰ This objection would not apply to common bonds; in particular, the ECB could not affect redistribution within the Monetary Union by buying up common bonds. This also creates the precondition for ECB bond purchases for monetary policy purposes. In view of persistently low inflation rates in the euro area, it would be desirable to establish a market for intervention measures in the euro area in the immediate future.³¹

Lastly, entry criteria must be specified authorizing a country to issue common bonds. Obviously, one prerequisite is that a country already has a sustainable debt level. This is not easy to define, however. One possibility might be to base the definition on the current average euro area debt level (around 95 percent of GDP) as an approximate value. For the countries that fail to fulfil this criterion, a condition for introducing common bonds should be the presence of a feasible debt repayment schedule.

Common bonds should be introduced gradually once the fiscal coordination preconditions discussed earlier are in place. The governance issues associated with the introduction of common bonds within a federation of states and concerns relating to constitutional law need to be clarified in advance. Particular attention must be paid to the requirements of the bailout ban in accordance with Article 125 of the TFEU which—depending on the volume of common bonds—require a new legal

²⁸ This could give Article 13 Para. 1b of the ESM Treaty more weight as it stipulates sustainable debt levels as a prerequisite for ESM stability assistance.

²⁹ G. Illing and P. König, "The European Central Bank as Lender of Last Resort," DIW Economic Bulletin, no. 9 (2014).

³⁰ Paragraph 73 of the German Constitutional Court's Opinion from January 14, 2014. See www.bundesverfassungsgericht.de/entscheidungen/rs20140114_2bvr272813.html.

³¹ K. Bernoth, M. Fratzscher, and P. König, "Weak Inflation and the Threat of Deflation in the Euro Area: Limits of Conventional Monetary Policy," DIW Economic Bulletin, no. 5 (2014).

Box 2

German Federal Bonds: a Safe Haven for the Euro Area?

It became apparent during the crisis that German government bonds are not suited to solely assuming the role of safe assets in the euro area.¹ Certainly, German bonds can act as a safe haven in times of crisis as their price is robust in response to bad news. However, during the recent crisis, they represented a popular destination for flight capital from peripheral countries. As a result, it was increasingly difficult for banks from the periphery to purchase sufficient amounts of German "Bunds" as their supply was limited. Further, it is the widening gap of the pricing of government bonds from various countries within the euro area, which have been actively used as collateral on European interbank markets that was driving the divergence in European banks' financing costs. In future, these asymmetrical centrifugal forces in the euro area's banking system must be eliminated which, first and foremost, requires a regulatory adjustment to ensure the banks' portfolios no longer demonstrate any significant home bias and are secured by sufficient equity capital.²

¹ Privately issued securities, underwritten with mortgages for example, are equally unsuitable as a safe haven in times of crisis. See also B. Holmström and J. Tirole, "Private and public supply of liquidity," *Journal of Political Economy* 106(1) (1998): 1-40.

² J. Pockrandt and S. Radde, "Reformbedarf in der EU-Bankenregulierung: Solvenz von Banken und Staaten entkoppeln," *DIW Wochenbericht*,

Within such a reformed regulatory framework, however, Germany would presumably benefit from its status since its bonds are considered particularly safe. The interest rate benefits that can currently be observed from the crisis would in this way be strengthened and institutionalized by European regulatory adjustments which, in turn, would likely lead to new long-term imbalances.³ Further, significant political resistance against any reform to regulatory equity requirements for government debt can be anticipated.

Finally, the volume of German government outstanding bonds is too low to be able to provide enough safe bonds for the entire euro area. This problem is likely to get worse given the demographic changes in Germany and the likely consolidation path for public finances after the introduction of balanced budget rules. Therefore, an instrument issuing higher volumes is required in order that the supply side can meet the increased demand for safe assets that already exists in response to regulatory changes.

no. 20 (2012).

³ Therefore, Fonseca and Santa-Clara have also proposed a concept that aims to balance out the interest burden between countries. See J. Fonseca and P. Santa-Clara, "Euro-coupons: Mutualise the interest payments, not the principal," (May 11, 2012), voxeu.org.

basis in certain circumstances. In a precedent-setting judgment on the Treaty of Lisbon, the German Constitutional Court in Karlsruhe has depicted a roadmap for greater European integration. The constitutional conditions outlined in the judgment must be brought in line with a gradual introduction of Eurobonds.³²

Better Balance of Fiscal Redistribution Needed

An inevitable disadvantage of common bonds is the expected distortion of national financing costs associated with ex ante transfers. Many critics of Eurobonds fear that peripheral countries would be able to borrow more cheaply whereas more stable economies such as Germany would be forced to pay higher interest rates which

would essentially constitute the establishment of a permanent transfer mechanism.³³ This fear could become reality since stronger countries are jointly liable for the debts of other euro area countries and are thus perceived by investors as being less solvent.

Due to the strict restriction of common bonds to around 25 percent of GDP, however, the extent of liabilities is clearly limited. Further, other countries are also jointly liable which means there is only likely to be a slight increase in the risk for each individual country. Ultimately, it is also true that the stronger economies are likely to profit from the liability of their share in common bonds. Overall, the advantages and privileges associated with the safe haven function within a currency union can be more evenly distributed among the mem-

³² F. Schorkopf, "The European Union as an association of sovereign states: Karlsruhe's ruling on the Treaty of Lisbon," *German Law Journal* (10)8 (2009): 1219-1240.

³³ T. Berg, K. Carstensen, and H.-W. Sinn, "Was kosten Eurobonds?," *ifo Schnelldienst* 64(17) (2011): 25-33.

ber states, which would also contribute to political acceptance (see Box 2).

However, the key advantage is that creating common bonds to act as a safe haven will make it possible to differentiate between the average and marginal interest rates on national debt: while the average interest should fall as the new safe bonds profit from the safe haven advantage and the liquidity premium, it is likely that the marginal interest rates will vary substantially according to national circumstances. Above all, this can be achieved by effectively separating bank risks from sovereign risks. It therefore needs to be ensured that a complete yield curve develops for national bonds on the market. This, in turn, will provide strong incentives, beyond pure fiscal policy, to improve the quality of national economic policy in order for national governments not to lose sight of long-term debt sustainability.³⁴

Conclusion

The European sovereign debt crisis has revealed the necessity for effective fiscal policy coordination within the European Monetary Union. The agreed rescue packages paved the way for an ex post redistribution that failed to reduce sufficiently the attractiveness of national over-indebtedness.

The introduction of commonly issued bonds would contribute to reducing contagion between sovereign states and the banking system in the long term. Complementarity with other policy measures—above all the banking union and a public debt restructuring framework for the euro area—should always be prioritized. As a result, common bonds provide an opportunity to restore market incentives to cut national spending and thus, in the long term, also alleviate the problem of over-indebtedness. The debate on the introduction of Eurobonds has so far overlooked the disciplining effect and the improved balance between ex post and ex ante transfers that would be achieved. Since common bonds bring various other economic advantages, ranging from greater financial and capital market integration in the euro area to a strengthening of the euro as an international reserve currency, a less ideological debate is needed in Europe.

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Keywords: Monetary union, sovereign debt crisis, banking crisis, fiscal transfers, institutional reform

³⁴ For this reason, Hellwig und Philippon's "Eurobills" proposal only includes short-term bonds. J. Tirole, "The euro crisis: some reflexions on institutional reform," *Financial Stability Review*, no. 16 (Banque de France, April 2012): 225–242.

European Unemployment Insurance: Economic Stability without Major Redistribution of Household Incomes

By Ferdinand Fichtner and Peter Haan

Depending on how it is structured, the introduction of a European unemployment insurance within the euro area could make a significant contribution to stabilizing economic developments. This even applies to a relatively small-scale system (based on the volume of transfers) with a maximum eligibility period of six months and transfers of 30 percent of last net salary. Higher payments would amplify the stabilizing effect but, conversely, also increase the potentially undesirable impact on incentives to work and degree of redistribution among member states. The distributive effects on households would be marginal; effects on income distribution in the Monetary Union would generally be slightly progressive to neutral. Low-income households therefore stand to gain relatively more from the introduction of a European unemployment insurance.

The notion that close fiscal policy cooperation and fiscal transfers between member states could make a positive contribution to the stability of economic developments in a currency union¹ has been the subject of academic discussion for a long time now.² Since a common monetary policy does not have the option of adjusting interest rates to accommodate asymmetric economic developments in member states, macroeconomic fluctuations in a currency union may be more pronounced than in a system of independent economies with flexible exchange rates.³ Fiscal transfers between member states could counteract this effect by providing countries experiencing an economic downturn with additional resources financed by those countries in an economic upswing.⁴ This deprives the booming economies of purchasing power, thus attenuating the risk of overheating, while giving weaker economies more leeway to pursue a less restrictive fiscal policy.

In the context of institutional restructuring of the European Monetary Union, proposals combining deeper fiscal policy integration with improved fiscal risk sharing between the member states are being voiced. For example, the report presented to the European Council

1 The present report is the summary of a study conducted by DIW Berlin on behalf of the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection. See S. Dullien, F. Fichtner, P. Haan, L. Jaeger, M. Jansen, R. Ochmann, and E. Tomasch, "Eine Arbeitslosenversicherung für den Euroraum als automatischer Stabilisator – Grenzen und Möglichkeiten," DIW Politikberatung Kompakt, no. 86 (2014), www.diw.de/documents/publikationen/73/diw_01.c.480292.de/diwkompakt_2014-086.pdf.

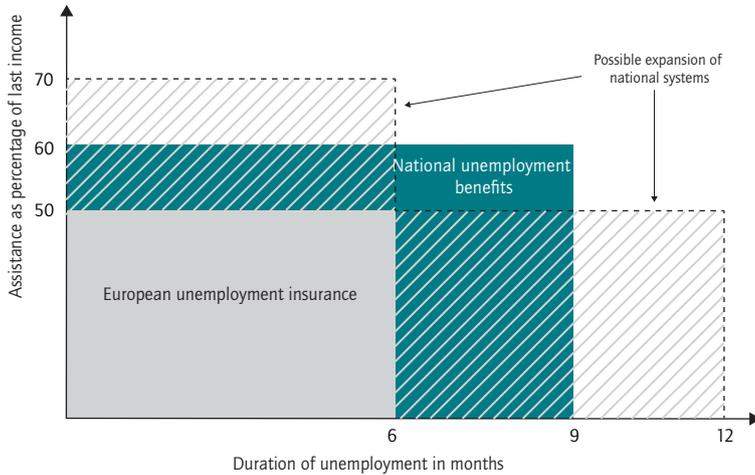
2 The present report is part of a DIW Economic Bulletin series addressing various elements of a strategy for institutional reform of the euro area. See F. Fichtner, M. Fratzscher, M. Podstawski, and D. Ulbricht, "Making the Euro Area Fit for the Future," DIW Economic Bulletin, no. 9 (2014).

3 For a pioneering work on the theory of optimum currency areas, see R. Mundell, "A Theory of Optimum Currency Areas," *American Economic Review* 51 (4) (1961): 657–665. For an overview of the criteria for fiscal integration, see F. Fichtner, *Optimum Currency Area Theory Revisited – New Insights from Stochastic Dynamics* (Aachen: 2008).

4 P. Kenen, "The Optimum Currency Area: An Eclectic View," in R. Mundell and A. Swoboda, eds., *Monetary Problems of the International Economy* (Chicago and London: 1969), 41–60.

Figure 1

Diagram of a European Unemployment Insurance



Source: graph by DIW Berlin.

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A European unemployment insurance scheme could replace national systems to a certain extent but could also complement them in different ways.

in December 2012, “Towards a Genuine Economic and Monetary Union” (Van Rompuy Report) sets out the objective of a more integrated budgetary framework across the euro area countries and, alongside the necessity of fiscal governance, also refers to increasing opportunities for “fiscal solidarity” in Europe.

One proposed cyclical stabilization mechanism for the Monetary Union which is gaining ground in public discussion is the introduction of a European unemployment insurance system.⁵ This would create an automatic link between transfer payments and a country’s economic situation and is therefore more robust against political manipulation. One controversial subject of discussion has been the impact of introducing a European unemployment insurance scheme on member states’ incentive to implement labor market reforms and whether it is possible to prevent permanent transfer flows from some countries to others, i.e., transfers that are not offset by the economic cycle.⁶

⁵ For a detailed account, see, for example, S. Dullien and F. Fichtner, “A Common Unemployment Insurance System for the Euro Area,” DIW Economic Bulletin, no. 1 (2013).

⁶ For a critical assessment of European unemployment insurance, see, for example K. Brenke, “A Skeptical View of Mechanisms for Business Cycle Harmonization in the Euro Area,” DIW Economic Bulletin, no. 1 (2013).

The present report outlines the macroeconomic stabilization effects of introducing a common pan-euro area unemployment insurance. On this basis, using Germany and Spain as examples, the authors estimate the impact of the system on the distribution of household incomes.

European Unemployment Insurance as an Automatic Stabilizer

Under the auspices of a European unemployment insurance, employees in participating countries would pay part of their earnings into the scheme and, in the event they become unemployed, would receive compensation payments from the fund for a limited period of time and based on their earnings prior to becoming unemployed. The duration could be stipulated so that the system only covers short-term, i.e., cyclical unemployment; it might be restricted to one year, for example. The size of transfer payments can also be set below national insurance benefit ceilings.⁷

The individual countries would still be entitled to provide benefits beyond this basic level of protection. This would enable the participating states—financed by national contributions or taxes—to top up the individual transfer payments from the outset and also to extend the eligibility period beyond the first year. As a result, countries would be able to apply different eligibility criteria for unemployment benefits such as different requirements regarding the age of the benefit recipient.

The diagram in Figure 1 shows a national system combined with different versions of a European unemployment insurance; for illustrative purposes, a national system with a maximum eligibility period of nine months and a benefit level of 60 percent of the last net salary is assumed.

In principle, there are two distinct alternatives. In one scenario, the benefit level of the European unemployment insurance is below that of the national insurance, both in terms of duration and amount.⁸ In this case, the introduction of a European unemployment insurance would involve part of the transfer payment being made through the European scheme; at the same time, the employee contribution paid to cover this share of the benefit to date would be paid directly into the European in-

⁷ For an overview of this and similar proposals, see also European Commission, Paper on Automatic Stabilisers (2013), ec.europa.eu/social/BlobServlet?docId=10964&langId=en.

⁸ Other determinants of the benefit level—such as the eligibility criteria—can be applied in a similar form. Here and in the following sections, the analysis is focused on the benefit duration and income replacement level.

Box 1

The NiGEM Macroeconomic Simulation Model

The present analysis is based on the NiGEM model developed by the National Institute of Economic and Social Research (NIESR).¹ NiGEM is a comprehensive simulation and forecasting model for the global economy incorporating typical New-Keynesian elements such as rational expectation formation by economic agents as well as price and wage rigidities. The model enables a broad but nonetheless detailed modeling of the global economy. NiGEM models all OECD countries as well as numerous emerging nations with up to 130 equations and the aim of simulating their reaction to exogenous developments; the simulations also factor in international feedback effects—through foreign trade, for example—as well as economic policy responses—such as monetary and fiscal policy—for economic developments.

¹ See also nimodel.niesr.ac.uk/.

The analysis uses counterfactual simulations. The model simulates an economic development in the past where the deviation from the actual historical course results from the development of exogenous or endogenous variables which diverge from reality. This simulation therefore shows an institutional or economic policy environment which deviates from reality. In the case of the introduction of a European unemployment insurance, social benefits and social contributions, in particular, change compared to the reality. The simulations are created on the basis of quarterly data and simulate the introduction of a common unemployment insurance scheme for the entire euro area.²

² NiGEM maps the economic development of all member states (as of January 2014) with the exception of Latvia, Luxembourg, Malta, and Cyprus.

insurance fund. Under these circumstances, both the total benefit level (national plus European unemployment insurance) and the total contribution to unemployment insurance would remain unchanged from the perspective of the insured, but the international risk equalization would result in increased economic stability.

However, it is to be assumed that a European unemployment insurance scheme would, to a certain extent, result in higher benefit levels than currently in place in Monetary Union member states. To give one example, the current benefits provided by the Irish unemployment insurance system are comparatively low. However, to achieve a marked improvement in economic stability, a certain degree of redistribution is necessary; thus, the transfers provided by a European unemployment insurance scheme would have to exceed the national insurance benefit levels in some of the participating countries. For these countries, the national insurance system would be completely replaced by the European scheme. At the same time, employees' contributions would increase—the cost of the higher level of social security would therefore be borne by the employees making unemployment insurance contributions in the participating member countries.⁹

⁹ There is therefore no cross-financing between systems which are kept deliberately restrictive and at the same time have low contributions.

Marked Macroeconomic Stabilization Effects

Had a common unemployment insurance scheme existed in the euro area since the creation of the Monetary Union in 1999, the cyclical fluctuations in some countries would have been considerably less pronounced; this finding is demonstrated by simulations conducted using the National Institute Global Economic Model (NiGEM) (see Box 1).¹⁰ During periods of economic downturn, a European unemployment insurance would bolster disposable income and consequently stabilize consumption¹¹ which, in turn, would have a stabilizing effect on production and employment in the countries affected. The loss of purchasing power in countries with strong

¹⁰ For a discussion of the assumptions underlying the simulations, see Dullien et al., "Eine Arbeitslosenversicherung für den Euroraum." In particular, assumptions must be made regarding the number of eligible unemployed and their reference wages prior to becoming unemployed. When interpreting the findings, it is important to bear in mind that the data the simulations are based on are incomplete. For example, only a crude estimate can be made of the number of people entitled to claim benefits from the European unemployment insurance fund based, inter alia, on the total number of unemployed because more detailed information on employment history is not available.

¹¹ The simulations take into consideration that those claiming wage replacement benefits usually have a comparatively high consumption rate because these payments typically benefit households with a relatively low net income. In the NiGEM consumer demand equations, therefore, the propensity to consume is calibrated with a suitably high value.

Table 1

Net Payment Flows with Generous European Unemployment Insurance Model (Model A)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
In million euros															Total
Austria	-553	-609	-600	-567	-549	-474	-432	-522	-614	-723	-557	-605	-718	-728	-8 249
Belgium	-303	-386	-421	-327	-188	-182	-235	-280	-368	-438	-256	-230	-359	-320	-4 293
Finland	-448	-515	-557	-539	-580	-595	-680	-711	-776	-802	-583	-796	-837	-830	-9 250
France	5 298	4 040	3 424	3 770	4 236	4 644	4 886	4 825	4 281	3 875	6 459	6 964	6 541	7 620	7 0861
Germany	-1 984	-2 948	-2 950	-1 735	-446	-896	511	-1 231	-3 260	-4 248	-2 620	-3 616	-5 776	-6 731	-3 7930
Greece	276	290	294	274	254	288	341	239	178	192	466	954	1 505	1 909	7 459
Ireland	-300	-378	-416	-401	-447	-495	-555	-594	-627	-413	273	-135	-231	-251	-4 969
Italy	-1 360	-1 678	-2 120	-2 328	-2 394	-2 175	-2 284	-2 716	-3 107	-2 974	-2 201	-2 052	-2 265	-1 583	-3 1236
Netherlands	-1 206	-1 365	-1 586	-1 541	-1 256	-1 038	-1 081	-1 454	-1 750	-1 960	-1 601	-1 308	-1 420	-1 214	-1 9781
Portugal	-215	-285	-277	-176	-27	-57	-36	-26	17	3	257	307	504	835	827
Slovakia	-34	-85	-99	-143	-129	-116	-189	-208	-214	-219	-101	-208	-244	-222	-2 213
Spain	309	125	139	877	756	709	182	112	-19	3 492	8 874	6 252	7 325	9 640	3 8774
As a percentage of GDP															Mean
Austria	-0.28	-0.29	-0.28	-0.26	-0.24	-0.20	-0.18	-0.20	-0.22	-0.26	-0.20	-0.21	-0.24	-0.24	-0.24
Belgium	-0.13	-0.15	-0.16	-0.12	-0.07	-0.06	-0.08	-0.09	-0.11	-0.13	-0.08	-0.06	-0.10	-0.09	-0.10
Finland	-0.37	-0.39	-0.40	-0.38	-0.40	-0.39	-0.43	-0.43	-0.43	-0.43	-0.34	-0.45	-0.45	-0.43	-0.41
France	0.39	0.28	0.23	0.24	0.26	0.28	0.28	0.27	0.23	0.20	0.34	0.36	0.33	0.37	0.29
Germany	-0.10	-0.14	-0.14	-0.08	-0.02	-0.04	0.02	-0.05	-0.13	-0.17	-0.11	-0.15	-0.22	-0.25	-0.11
Greece	0.23	0.21	0.20	0.17	0.15	0.16	0.18	0.11	0.08	0.08	0.20	0.43	0.72	0.98	0.28
Ireland	-0.33	-0.36	-0.36	-0.31	-0.32	-0.33	-0.34	-0.34	-0.33	-0.23	0.17	-0.09	-0.14	-0.15	-0.25
Italy	-0.12	-0.14	-0.17	-0.18	-0.18	-0.16	-0.16	-0.18	-0.20	-0.19	-0.15	-0.13	-0.14	-0.10	-0.16
Netherlands	-0.31	-0.33	-0.36	-0.33	-0.26	-0.21	-0.21	-0.27	-0.31	-0.33	-0.28	-0.22	-0.24	-0.20	-0.28
Portugal	-0.18	-0.22	-0.21	-0.13	-0.02	-0.04	-0.02	-0.02	0.01	0.00	0.15	0.18	0.29	0.50	0.02
Slovakia	-0.12	-0.27	-0.29	-0.39	-0.32	-0.26	-0.38	-0.38	-0.35	-0.33	-0.16	-0.32	-0.36	-0.31	-0.30
Spain	0.05	0.02	0.02	0.12	0.10	0.08	0.02	0.01	-0.00	0.32	0.84	0.59	0.69	0.92	0.27

Source: calculations by DIW Berlin based on NiGEM.

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economic growth would also have a stabilizing impact by cooling down the overheating economy.

The impact would vary from country to country depending on the generosity of the insurance system; the following results are based on a generous model with transfers of 70 percent of last net salary and a maximum eligibility period of 12 months (Model A) and a restrictive model with a net replacement rate of 30 percent and eligibility period of up to six months (Model B). The contribution to be transferred to the European unemployment insurance fund also varies according to the level of benefits. In the generous model, the contribution rate is 1.3 percent of gross wages, and in the restrictive model, it is 0.4 percent.¹² However, there would be a reduction in the contribution to the national insurance because part of the benefits now paid out by the national insurance would be transferred to the European level.

¹² It is assumed that contributions made during the simulation period (1999–2012) are exactly high enough to cover the costs of European unemployment insurance. For the macroeconomic simulations, we abstract from the contribution assessment limit that exist in the national systems.

Both models assume that only a certain percentage of those classified as unemployed would also be entitled to claim benefits under the European unemployment insurance scheme; the number of recipients classified as short-term unemployed is calibrated so that their share in the European scheme corresponds to their share in the relevant national insurance schemes. In the interest of simplification, the simulations presented here assume that the eligibility criteria applied in the national systems are also applied to a European unemployment insurance. In practice however, it would be necessary to define clear eligibility criteria for transfers from the European unemployment insurance—for example, with regard to employment in the period prior to becoming unemployed.¹³

¹³ It must be borne in mind that even if there are unified eligibility criteria, the different ways in which the national institutions monitor and implement these criteria could lead to incorrect transfers; with this in mind, centralized monitoring cannot be completely avoided. On this aspect, see also Brenke, “A Skeptical View of Mechanisms.”

Table 2

Net Payment Flows with Restrictive European Unemployment Insurance Model (Model B)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
In million euros															Total
Austria	-148	-163	-154	-134	-133	-107	-99	-134	-160	-199	-117	-163	-189	-184	-2 085
Belgium	-92	-127	-123	-101	-56	-87	-90	-76	-111	-113	-36	-78	-132	-78	-1 298
Finland	-125	-151	-161	-149	-166	-170	-202	-209	-228	-229	-137	-232	-242	-233	-2 633
France	1 461	1 007	909	1 055	1 122	1 266	1 322	1 287	1 144	1 194	2 241	1 825	1 760	2 275	19 868
Germany	-742	-1 004	-908	-409	-235	-559	224	-819	-1 209	-1 271	-535	-1 233	-1 884	-1 890	-12 473
Greece	77	72	79	50	23	47	57	26	38	57	174	307	460	522	1 989
Ireland	-89	-115	-119	-110	-134	-152	-161	-166	-172	-82	166	-106	-126	-103	-1 468
Italy	-522	-619	-752	-793	-809	-645	-669	-798	-882	-769	-566	-620	-707	-413	-9 565
Netherlands	-339	-392	-456	-403	-307	-292	-349	-473	-527	-564	-391	-335	-407	-287	-5 522
Portugal	-68	-94	-82	-37	1	-47	-23	-27	0	-7	100	53	153	258	179
Slovakia	-5	-28	-34	-45	-44	-37	-56	-62	-65	-66	-15	-61	-75	-68	-661
Spain	36	16	39	366	216	171	135	265	265	1 830	3 685	1 668	2 085	2 893	13 669
As a percentage of GDP															Mean
Austria	-0.07	-0.08	-0.07	-0.06	-0.06	-0.05	-0.04	-0.05	-0.06	-0.07	-0.04	-0.06	-0.06	-0.06	-0.06
Belgium	-0.04	-0.05	-0.05	-0.04	-0.02	-0.03	-0.03	-0.02	-0.03	-0.03	-0.01	-0.02	-0.04	-0.02	-0.03
Finland	-0.10	-0.11	-0.12	-0.10	-0.11	-0.11	-0.13	-0.13	-0.13	-0.12	-0.08	-0.13	-0.13	-0.12	-0.12
France	0.11	0.07	0.06	0.07	0.07	0.08	0.08	0.07	0.06	0.06	0.12	0.09	0.09	0.11	0.08
Germany	-0.04	-0.05	-0.04	-0.02	-0.01	-0.03	0.01	-0.04	-0.05	-0.05	-0.02	-0.05	-0.07	-0.07	-0.04
Greece	0.06	0.05	0.05	0.03	0.01	0.03	0.03	0.01	0.02	0.02	0.08	0.14	0.22	0.27	0.07
Ireland	-0.10	-0.11	-0.10	-0.08	-0.10	-0.10	-0.10	-0.09	-0.09	-0.05	0.10	-0.07	-0.08	-0.06	-0.07
Italy	-0.05	-0.05	-0.06	-0.06	-0.06	-0.05	-0.05	-0.05	-0.06	-0.05	-0.04	-0.04	-0.04	-0.03	-0.05
Netherlands	-0.09	-0.09	-0.10	-0.09	-0.06	-0.06	-0.07	-0.09	-0.09	-0.09	-0.07	-0.06	-0.07	-0.05	-0.08
Portugal	-0.06	-0.07	-0.06	-0.03	0.00	-0.03	-0.02	-0.02	0.00	0.00	0.06	0.03	0.09	0.16	0.00
Slovakia	-0.02	-0.09	-0.10	-0.12	-0.11	-0.08	-0.11	-0.11	-0.11	-0.10	-0.02	-0.09	-0.11	-0.10	-0.09
Spain	0.01	0.00	0.01	0.05	0.03	0.02	0.01	0.03	0.02	0.17	0.35	0.16	0.20	0.28	0.10

Source: calculations by DIW Berlin based on NiGEM.

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The impact of introducing a European unemployment insurance scheme varies significantly among participating member states. Depending on the national level of social security benefits and, particularly, the labor market situation and economic developments, contributions to and transfers from the European unemployment insurance fund vary significantly over time, and across participating member states (see Tables 1 and 2).

If we take Portugal as an example, it is possible to illustrate the fundamental idea behind the European unemployment insurance, i.e., that countries receive higher transfers during times of crisis and pay higher contributions when their economies are strong. During the first half of the simulation period, Portugal is a net contributor, and only from 2007 onwards do large sums flow into the country, thus providing budgetary relief. If we consider the example of Germany, however, it is evident that countries do not only receive payments during severe recessions; in 2005, when Germany was experiencing economic stagnation and rising unemployment, it received positive transfers being usually a net contributor.

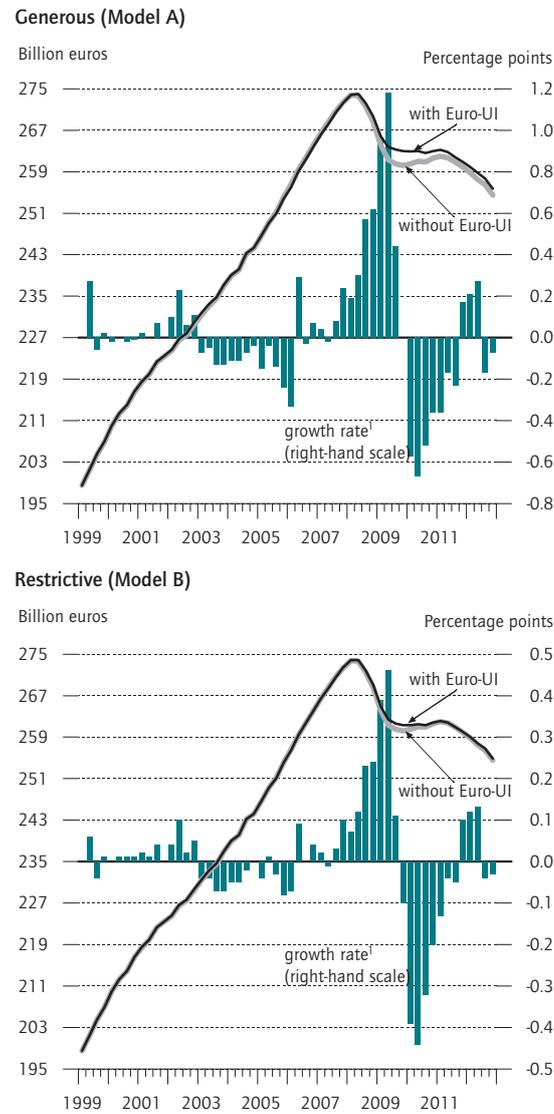
However, the simple model of a European unemployment insurance considered here also proves that it is impossible to completely avoid permanent transfers.¹⁴ This is partly due to the period of observation—after 2009, transfer processes were dominated by the crisis and the resultant sharp increase in unemployment in some of the Monetary Union countries, and it partly stems from structural differences between the member states' labor markets. Consequently, Spain and France profit considerably from the introduction of a European unemployment insurance over the entire observation period. In Spain, this is primarily a result of the high transfers during the crisis. In France, due to the comparatively high reference wages and high number of eligible unemployed, transfers are clearly positive for all years.¹⁵ Conversely, in Austria and the Netherlands, neg-

¹⁴ One possible way of avoiding permanent transfers is to set country-specific contribution rates to the European unemployment insurance and to correct them for surpluses and/or deficits accumulated in the past. On this, see S. Dullien, "Preventing permanent transfers under a European Unemployment Insurance: Can a clawback mechanism be the answer?" presentation (2014), ec.europa.eu/social/BlobServlet?docId=11885&langId=en.

¹⁵ It is likely that the number of eligible unemployed has been overestimated for Spain and France because both countries have national unemployment

Figure 2

Impact of a European Unemployment Insurance on Spain's Economy



1 Change in annualized GDP growth against previous quarter compared to baseline scenario without European unemployment insurance. Source: calculations by DIW Berlin based on NiGEM.

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The economic downturn experienced by Spain in 2010 would have been significantly less pronounced.

ative net payment flows are observed for the entire period due to low unemployment resulting in low transfers and, at the same time, high contributions due to com-

insurance schemes with a two-year eligibility period and a correspondingly high number of eligible unemployed at the national level. This cannot be corrected due to a lack of data on employment history of the unemployed.

Table 3

Impact of European Unemployment Insurance on Spain's Economy

In percent

	Modell A ¹	Modell B ²	Baseline
Change in real GDP			
1997	3.87	3.87	3.87
1998	4.47	4.47	4.47
1999	4.79	4.75	4.75
2000	5.10	5.10	5.09
2001	3.68	3.68	3.67
2002	2.80	2.75	2.71
2003	3.08	3.08	3.09
2004	3.16	3.21	3.26
2005	3.48	3.56	3.58
2006	3.98	4.06	4.08
2007	3.54	3.50	3.48
2008	1.16	1.00	0.89
2009	-3.10	-3.56	-3.83
2010	-0.42	-0.41	-0.20
2011	-0.26	-0.10	0.05
2012	-1.57	-1.58	-1.64
Unemployment rate			
2007	8.33	8.28	8.28
2008	11.28	11.33	11.38
2009	17.60	17.86	18.03
2010	19.71	19.98	20.08
2011	21.73	21.77	21.68
2012	25.23	25.16	25.08

1 With generous European unemployment insurance model.

2 With restrictive European unemployment insurance model.

Source: calculations by DIW Berlin based on NiGEM

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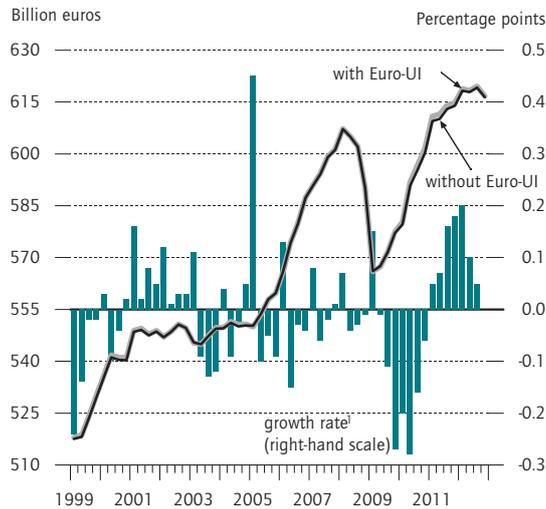
paratively high gross wages. In Belgium and Italy, the number of short-term unemployed relative to overall unemployment is comparatively low, which results in negative net payment flows despite the very high overall level of unemployment.

Changes in net payment flows over time are a decisive factor affecting the economic impact of a European unemployment insurance. For instance, in one country, a European unemployment insurance might have a dampening effect on the economy during a period when the absolute amount of net payments is declining even if net payments remain positive overall. The stabilizing effects of a European unemployment insurance scheme are outlined in detail below, illustrated with the examples of Spain and Germany. The analysis thus presents findings for two countries which have shown particularly different macroeconomic developments since the creation of the Monetary Union. After the introduction of the euro, Germany's economic development was ini-

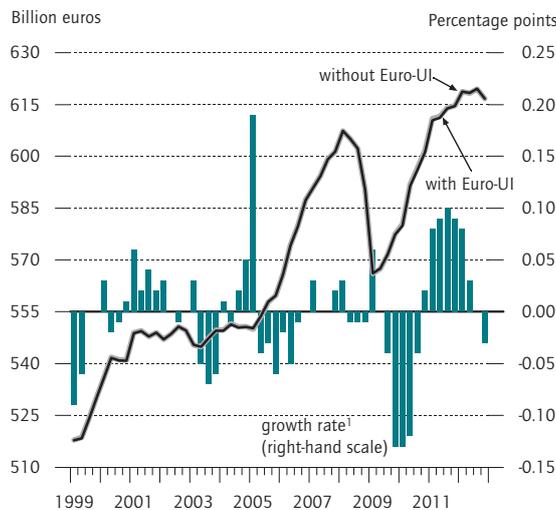
Figure 3

Impact of a European Unemployment Insurance on Germany's Economy

Generous (Model A)



Restrictive (Model B)



1 Change in annualized GDP growth against previous quarter compared to baseline scenario without European unemployment insurance. Source: calculations by DIW Berlin based on NiGEM.

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European unemployment insurance would also have buffered economic fluctuations in Germany somewhat.

tially subdued whereas the Spanish economy expanded dramatically. Conversely, during the crisis period, i.e., from 2008, the Spanish economy contracted sharply, while German economic growth, particularly labor market development, was only temporarily impaired. The qualitative findings presented here can also be applied to the other Monetary Union countries.

Table 4

Impact of European Unemployment Insurance on Germany's Economy

In percent

	Modell A ¹	Modell B ²	Baseline
Change in real GDP			
1997	1.79	1.79	1.79
1998	1.66	1.66	1.66
1999	1.65	1.71	1.74
2000	3.27	3.30	3.30
2001	1.69	1.66	1.64
2002	0.09	0.04	0.03
2003	-0.39	-0.40	-0.39
2004	0.64	0.68	0.69
2005	0.93	0.89	0.85
2006	3.85	3.85	3.89
2007	3.38	3.40	3.39
2008	0.81	0.81	0.81
2009	-5.08	-5.09	-5.09
2010	3.67	3.77	3.86
2011	3.41	3.44	3.40
2012	1.03	0.95	0.90
Unemployment rate			
2007	8.65	8.65	8.65
2008	7.50	7.50	7.50
2009	7.80	7.80	7.80
2010	7.19	7.14	7.10
2011	5.93	5.91	5.93
2012	5.41	5.43	5.45

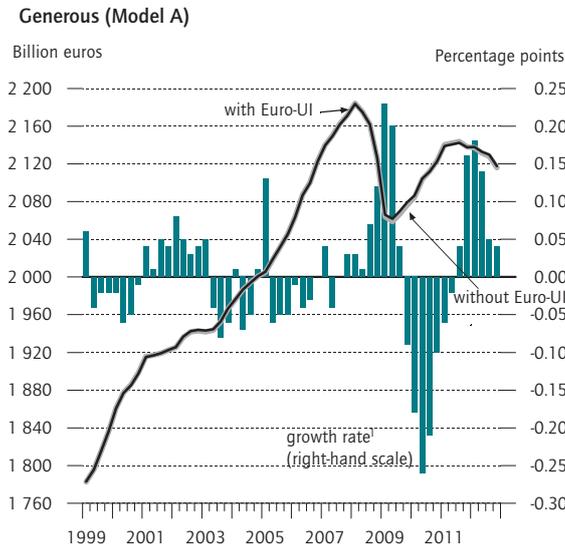
1 With generous European unemployment insurance model.
2 With restrictive European unemployment insurance model.
Source: calculations by DIW Berlin based on NiGEM.

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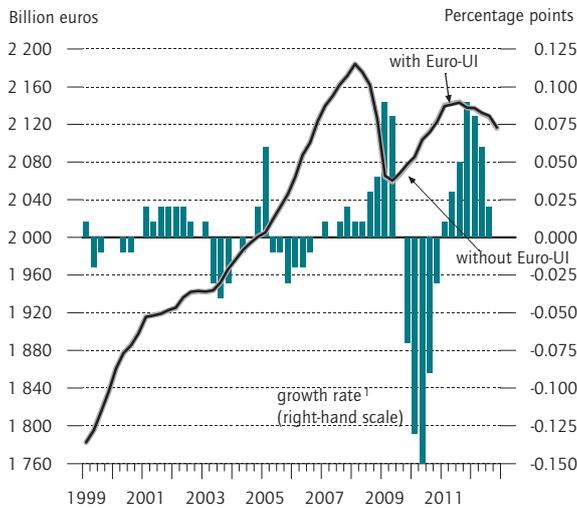
Increasing transfers from a European unemployment insurance would result in positive growth and employment effects for the member states with weak economies, which could lead to significant deviations from the baseline, i.e., economic developments without a European unemployment insurance. As shown in Figure 2 and Table 3 for Model A, the introduction of a European unemployment insurance scheme would have significantly reduced Spanish GDP losses from 2008 to 2010; this is primarily due to a less severe slump in disposable income which, in turn, moderates the downturn in consumer demand. In addition, as a result of the European unemployment insurance easing the burden on the national budget, there would be stronger growth in public spending which, in turn, would have a stabilizing impact. The downturn in GDP in 2009 would then have amounted to 3.1 instead of 3.8 percent. A similar effect is also observed in Model B (see Figure 2) although this materializes at a slightly later point in time and to a lesser extent. In the years immediately preceding the crisis, the growth in Spanish GDP resulting from the Europe-

Figure 4

Impact of a European Unemployment Insurance on the Euro Area's Economy



Restrictive (Model B)



1 Change in annualized GDP growth against previous quarter compared to baseline scenario without European unemployment insurance. Source: calculations by DIW Berlin based on NiGEM.

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Overall, the stabilizing impact on the euro area economy would have been marginal.

an unemployment insurance would have been slightly more moderate. The transfers from the European unemployment insurance scheme would have decreased in the pre-crisis period because unemployment was also declining. This would have subdued the expansion of

Table 5

Impact of European Unemployment Insurance on Germany's Economy

In percent

	Modell A ¹	Modell B ²	Baseline
Change in real GDP			
1997	2.65	2.65	2.65
1998	2.73	2.73	2.73
1999	2.84	2.83	2.84
2000	4.01	4.04	4.04
2001	2.03	2.03	2.02
2002	0.98	0.95	0.93
2003	0.75	0.74	0.75
2004	1.93	1.96	1.97
2005	1.81	1.82	1.81
2006	3.34	3.35	3.37
2007	2.97	2.98	2.98
2008	0.29	0.27	0.26
2009	4.27	-4.35	-4.40
2010	1.79	1.83	1.91
2011	1.60	1.65	1.66
2012	-0.49	-0.55	-0.60

1 With generous European unemployment insurance model.

2 With restrictive European unemployment insurance model.

Source: calculations by DIW Berlin based on NiGEM.

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private consumer demand and thus also mitigated the overheating of the economy somewhat.¹⁶

However, during periods of high growth—or periods of low unemployment—a European unemployment insurance would have resulted in dampening effects on the economies of the member states. Due to the growth in employment during economic upswings, contributions also increase, leading to an outflow of cash which, in turn, slows overall economic growth.

The German economy would have experienced stronger growth during periods of weak economic activity (particularly from 2000 to 2002 and in 2005) with a European unemployment insurance than without it. However, over the entire observation period and particularly since the beginning of the crisis, the introduction of a European unemployment insurance would have had a primarily negative impact on the country's GDP; this is demonstrated in Figure 3 and Table 4 for unemployment insurance models A and B, which vary in their generosity. The predominantly negative impact on German GDP is a result of the—on aggregate—negative net pay-

¹⁶ Although Spain's net claims from the European unemployment insurance were positive over the entire simulation period, the decisive factor for the economic impact of the transfer mechanism is, however, the changes in transfers which would have been negative prior to the crisis and consequently would have had a negative impact on the economy.

Box 2

EUROMOD: Tax-Benefit Microsimulation Model for the European Union

The present analysis uses EUROMOD, the tax-benefit microsimulation model for the European Union. EUROMOD was developed by the Institute for Social and Economic Research (ISER) at the University of Essex in cooperation with national teams in each EU member state and commissioned by the EU's Directorate-General for Employment, Social Affairs and Inclusion (DG-EMPL). In 2012, EUROMOD was extended significantly as part of a development project and now covers income tax and benefit systems in all 27 EU member states.¹ EUROMOD now operates using EU-SILC (European Survey of Income and Living Conditions)² as a unified database

for all countries. The EU-SILC data include market income differentiated by source (employment, capital, letting, and leasing) as well as accurate information on the composition of income replacement and transfer payments. Consequently, it can be determined how much unemployment benefit, unemployment assistance, and/or social security benefits each household received in the reference year. In addition, the data capture any periods of employment, unemployment, and/or retirement in the reference year (previous year) which, depending on the country, is either 2008 or 2010. The present analysis uses program version F6.36 of the EUROMOD Model. This is based on 2010 EU-SILC data for Germany and Spain. The reference year for income and unemployment is therefore the previous year, 2009, i.e., the height of the financial crisis. This aspect must be borne in mind when interpreting the findings. Consequently, the transfer payments from national unemployment insurance, on which the microanalysis is based, refer to a period during which unemployment was relatively high..

¹ EUROMOD is continuously being developed and updated. The present analysis uses a preliminary version of F5.6 and the official version of this program will be released in the near future. This was kindly made available to DIW Berlin, ahead of its release, by the EUROMOD development team at the University of Essex. Due to a fundamental update of the program from 2009 to 2012 in conjunction with, inter alia, a standardization of the database, the results of the current program version can no longer be compared, without limitations, with the results from previous EUROMOD versions. Documentation on the current EUROMOD program version can be found on www.iser.essex.ac.uk/euromod, last accessed on March 12, 2012.

² The UK is an exception, however, as, for this country, the version of EUROMOD used in the present analysis is still based on data from the Family Resources Surveys (FRS) (survey period 2008/09).

ments the country receives from the European unemployment insurance fund; since the German labor market was barely affected by the crisis that began in 2008, while other countries experienced significant increases in unemployment, Germany would have been a net contributor during the entire observation period. During other economic cycles—for example, if Germany were to experience comparatively unfavorable labor market developments—the reverse effect would be observed.

A look at the entire euro area shows that a European unemployment insurance following Models A and B would also contribute to an increase in macroeconomic stability at this level. For Model A (see Figure 4 and Table 5), there is a maximum stabilizing effect of approximately 0.15 percent of the euro area's GDP during the crisis years of 2008 and 2009. In the run-up to the crisis (2005 to 2007) and also during the period of economic recovery (2010 and 2011), contractive effects on GDP are visible. This emphasizes the counter-cyclical nature of this European unemployment insurance model. Similar, albeit considerably less pronounced, effects are evident for Model B (see Figure 4).

The medium- to long-term effects of a European unemployment insurance are marginal. This is because a European unemployment insurance in the form modeled here induces appreciable transfers to the economies affected, particularly during periods of strong growth in (short-term) unemployment, whereas a persistently high level of unemployment combined with an increasing average duration of unemployment is accompanied by a withdrawal of transfers from the European unemployment insurance fund. Furthermore, the simulations presented here do not factor in longer term unemployment effects on economic output such as those sometimes associated with hysteresis effects of the labor market. The reduction in economic volatility achieved by introducing the European unemployment insurance could also improve an economy's growth prospects in that companies would be more willing to invest in a more predictable economic environment.

Table 6

Positive Financial Impact¹ of European Unemployment Insurance on German Households

	Equivalence weighted ² net household income		Net household income	Share of unemployment benefit recipients	Positive financial impact—Model A		Positive financial impact—Model B	
	Mean	Decile boundary			Mean	Mean	On income	Mean
	In euros			In percent	In euros	In percent	In euros	In percent
1st decile	8,495	10,831	10,783	7.5	12	0.11	-3	-0.02
2nd decile	12,023	13,163	17,130	1.6	-25	-0.15	-8	-0.05
3rd decile	14,285	15,381	21,374	1.1	-48	-0.22	-15	-0.07
4th decile	16,396	17,380	25,056	0.9	-74	-0.29	-21	-0.08
5th decile	18,382	19,447	28,485	0.6	-102	-0.36	-26	-0.09
6th decile	20,627	21,863	30,866	0.1	-129	-0.42	-31	-0.10
7th decile	23,198	24,752	34,981	0.0	-172	-0.49	-39	-0.11
8th decile	26,765	28,985	40,013	0.1	-192	-0.48	-45	-0.11
9th decile	31,841	35,535	47,498	0.1	-245	-0.52	-57	-0.12
10th decile	49,739	-	72,867	0.2	-308	-0.42	-73	-0.10
All households	21,862	-	32,363	1.4	-125	-0.39	-31	-0.10

¹ In 2012 prices.

² Equivalence weighted using modified OECD scale.

Sources: EU Statistics on Income and Living Conditions (EU-SILC), 2010 data for Germany; calculations by DIW Berlin using EUROMOD (program version F6.36).

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Microeconomic Distributional Effects Tend to be Progressive

The distributional effects of the different models for a European unemployment insurance are derived using the EUROMOD microsimulation model. This model maps the current income tax, social insurance, and transfer systems for households (status quo) in all EU member states and describes the effects of these systems on household net disposable income (see Box 2). Further, the model can also simulate the impact of specific reforms, in this case a reform of unemployment insurance, on net income.

The distributional analysis compares the status quo of income distribution (pre-reform) with the income distribution after the simulated versions of the reform are implemented (post-reform). The differences reveal the distributive effects with respect to household income, i.e. which households are better or worse off due to the reform. The distribution analysis is always based on the 2012 income distribution.

The macro model described above simulates the financing volume and converts this into a contribution rate for the different European unemployment insurance models which is identical for all countries and remains constant over time. The introduction of a European unem-

ployment insurance scheme further reduces the financial burden on national insurance systems and, thus, the contributions into this system. The net effect of these two financing components is incorporated into the micro model in the form of a change in the contribution rate to the national insurance system for each country and each reform version. This net effect of a European unemployment insurance on net household incomes can then be calculated.¹⁷

The effects of different European unemployment insurance models on household incomes and on income distribution are discussed below using German and Spanish households as examples. The distributive effects are shown as deciles of net household income where the division of households into income deciles also takes household size into consideration (equivalence weighting). The first four columns of Tables 6 and 7 first show the upper income boundaries and the corresponding equivalence weighted and unweighted average incomes as well as the share of eligible unemployed in each of the deciles. The last four columns display the absolute and relative

¹⁷ In Dullien et al., "Eine Arbeitslosenversicherung für den Euroraum," the assumptions necessary for integrating the macro and micro models are discussed, particularly with regard to the eligible unemployed population.

Table 7

Positive Financial Impact¹ of European Unemployment Insurance on Households in Spain

	Equivalence weighted ² net household income		Net household income	Share of unemployment benefit recipients	Positive financial impact—Model A		Positive financial impact—Model B	
	Mean	Decile boundary	Mean	Mean	Mean	On income	Mean	On income
	In euros			In percent	In euros	In percent	In euros	In percent
1st decile	3,111	5,840	5,638	5.9	46	0.81	8	0.14
2nd decile	7,137	8,269	13,082	11.5	101	0.77	20	0.15
3rd decile	9,172	10,112	15,839	8.5	113	0.71	23	0.15
4th decile	11,005	11,869	19,689	9.5	120	0.61	30	0.15
5th decile	12,720	13,547	22,697	10.8	125	0.55	36	0.16
6th decile	14,436	15,283	24,927	7.5	134	0.54	39	0.16
7th decile	16,365	17,496	28,671	6.9	138	0.48	50	0.17
8th decile	18,827	20,323	33,468	6.6	162	0.49	60	0.18
9th decile	22,484	25,149	39,208	5.7	177	0.45	77	0.20
10th decile	32,598	-	54,951	3.9	177	0.32	88	0.16
All households	14,995	-	26,160	7.6	130	0.50	44	0.17

¹ In 2012 prices.

² Equivalence weighted using modified OECD scale.

Sources: EU Statistics on Income and Living Conditions (EU-SILC), 2010 data for Germany; calculations by DIW Berlin using EUROMOD (program version F6.36).

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positive and negative financial effects of both European unemployment insurance models.

The average income effects across all households (bottom line) are a direct result of the macro model simulations. Spanish households are better off on average whereas German households are worse off. This applies to both of the European unemployment insurance models discussed in the present analysis.

However, these aggregated effects do not show the whole picture regarding the introduction of a European unemployment insurance; wins and losses depend on a households' position in the income distribution. Each model would have its particular winners and losers since transfers and contributions affect two fundamentally different income groups: Those claiming benefits generally have much lower average incomes than those paying contributions. If reforms are now to be implemented both on the transfer and on the financing side, with additional benefits typically financed from the system itself, households at the lower end of the income distribution spectrum are affected differently than those in the middle and upper ranges of the distribution.

According to the generous European unemployment insurance model (Model A), German households in the lowest decile were 12 euros per year, or 0.11 percent, better off, on average. In all other deciles, households were

worse off, on average. The absolute financial burden increases progressively and totals an average of 308 euros in the upper decile. Relatively speaking, a progressive effect is also observed. There is less of a negative impact on the households in the upper decile than on the households between the 5th and 9th deciles.

The small-scale model (Model B) paints a similar picture. However, in this model, households in the lower decile also lose on average, though the absolute and relative effects are marginal across all deciles.

The situation in Spain is quite different. For both models considered, all households are better off here on average. A possible explanation for the disparity between Germany and Spain is the different distribution of eligible unemployed across the deciles. While in Germany only a small number of households outside the lowest decile is unemployed and thus entitled to claim financial support from a European unemployment insurance, in Spain the share is significant, even in the upper decile. However, simulations show that the introduction of a European unemployment insurance scheme has a predominantly progressive effect. Although, in absolute terms, the positive financial effects increase with the deciles, relative to household income, the generous insurance model results in much more significant positive effects in the lower deciles. For example, households in the lowest decile are 0.81 percent better off, on aver-

age, and households in the highest decile are only 0.31 percent better off. In the small-scale model, the effects are marginal in all deciles. Here, no clear trend is evident across the deciles.

Conclusion

The present Economic Bulletin article analyzes the macroeconomic stabilization and microeconomic distributional effects of introducing a European unemployment insurance scheme. The analysis demonstrates that the introduction of such a transfer system in the euro area—depending on its structure—can make a significant contribution to stabilizing economic developments. Particularly the generous European unemployment insurance model examined in this analysis with a net replacement rate of 70 percent and maximum eligibility period of 12 months would have an appreciable impact: in Spain, for example, the 2009 decline in real GDP stemming from the crisis which was 3.8 percent in reality would have been reduced to 3.1 percent with a European unemployment insurance. The distributive impact of a common unemployment insurance would be progressive in Spain because low-income households tend to benefit more from the introduction of this type of scheme than those with higher incomes. Similar distributive effects are observed for German households: While German households would be worse off on average if a European unemployment insurance model were to be introduced, households in the lower deciles are either completely unaffected or only negligibly worse off.

However, this very generous European unemployment insurance model might be accompanied by an increase in unemployment benefit levels for virtually all European economies—with potential undesirable knock-on effects on incentives to work and labor market developments. On the other hand, if the amount of unemployment benefit received under the European scheme were to be restricted to a minimum with a maximum six-month eligibility period and net replacement rate of 30 percent, the stabilization impact would decrease sharply. Yet this model also has a marked impact; if this form of unemployment insurance had been introduced, the decline in Spanish GDP in 2009 would still have been reduced to 3.6 percent versus the actual drop of 3.8 percent. The distributive effect would also have been correspondingly lower. It is evident from the examples of Spain and Germany that the restrictive model would barely have any distributive impact; all Spanish households would have been equally better off but only by less than 0.2 percent of their net income (on average 44 euros per household per year).

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