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Introduction to

Ten Years After the Start of the Euro Crisis: Lessons for Financial Markets and Macroeconomic Policies

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Abstract

The papers in this Special Issue take stock of the functioning of the euro area during its crisis, which encompassed mainly the years 2009 to 2015. They address several questions. For example, what surprises did the euro crisis provide about our knowledge about monetary unions? Why were the interconnections between banking systems and fiscal positions so strong during the euro-area crisis? In so doing, they contribute to a deeper understanding of the nature of Europe's monetary union, the underpinnings of its crisis, and the changes that need to be made to the monetary union so that crises can be prevented in the future.

JEL Classification codes: E52, E58, F62, F63, G0

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1. Introduction

The papers in this Special Issue of *Oxford Economic Papers* were submitted for presentation at the 24th International Conference on Macroeconomic Analysis and International Finance, scheduled to be held at the Department of Economics at the University of Crete in Rethymno May 28-30, 2020. The conference announcement stated that a selected set of papers would be considered for publication in *Oxford Economic Papers* under the theme "Ten Years After the Start of the Euro Crisis: Lessons for Financial Markets and Macroeconomic Policies." In light of the Covid pandemic, however, the conference had to be cancelled. However, given that the arrangements were already substantially in place and we had already received a large number of high-quality submissions, the editors of *OEP* decided to proceed with the publication of a selected group of papers intended for presentation to the conference.

The papers in this Special Issue take stock of the functioning of the euro area during its crisis, which encompassed mainly the years 2009 to 2015. In what follows, we provide an overview of that crisis and a synopsis of the papers in the issue.

2. Background

At the time of the euro's tenth anniversary in 2009, the literature on monetary integration appeared to have settled into a serene equilibrium. Much of the credit for this state of affairs was attributed to the euro. By-and-large, the euro's first ten years were judged to have been a success.[1] The euro had created a low-inflation, low-interest-rate environment, even for formerly high-inflation countries. The number of participating countries had risen from eleven in 1999 to sixteen in 2009. Notwithstanding the eruption

[1] In a survey of the literature on European monetary union, Beetsma and Giuliodori (2009, p. 1) wrote: "Many experts consider the [euro] to be a success, though not one without some major flaws. There have been no disruptions in the financial markets as a result of the monetary unification, nor has there been economic chaos otherwise." The quotation is from a working paper. The identical statement appeared a year later in the published version of the paper, by which time the euro crisis was well-underway. See Beetsma and Giuliodori (2010, p. 603).

of the global financial crisis in August 2007 and its intensification in September 2008 with the collapse of Lehman Brothers, the euro area had been relatively unscathed by the effects of the crisis. To mark the euro's tenth anniversary, at the end of 2009 the European Commission published a study that sought to explain the reasons that the critics of the single currency could have been so misled in their skeptical assessments of the euro's feasibility. The authors of the Commission's study concluded that "the euro has existed for more than a decade. So far, the pessimistic forecasts and scenarios ... have not materialized. The euro is well established" (Jonung and Drea, 2009, p. 28). Earlier, in June 2005, at an ECB workshop on "What Effects is EMU Having on the Euro Area and its Member Countries?," the organizers of the workshop summarized the proceedings as follows: "Overall, the effects of [the euro] that we observe are beneficial. Many potential concerns preceding the launch of the euro have been dispelled" (Mongelli and Vega, 2006, p. 36). The euro's evident success contributed to a confident view in the economics literature about the profession's knowledge on the subject of monetary integration. For example, Santos Silva and Tenreyro (2010, p. 5) expressed the view that "the theoretical arguments for and against currency unions are intuitively appealing and fairly well understood."[2]

There were good reasons to celebrate the euro's apparent success. The academic literature of the 1980s and 1990s had identified two important benefits of monetary unification, and the countries of the euro area appeared to be enjoying those benefits. First, the literature on policy credibility, especially work by Barro and Gordon (1983) and Giavazzi and Pagano (1988), led to the view that a move to a common-currency arrangement can be entirely motivated by a desire to commit to more-efficient monetary practices. Hence, the loss of domestic monetary control may actually be *beneficial*. Experience has indeed shown that countries with histories of high inflation often have difficulty in stabilizing their economies by using policies at the national level, for example, by making their central bank independent or unilaterally pegging their currency to that of

[2] The quotation is from a 2010 working paper. The identical statement was repeated in the 2010 published version of the paper. See Santos Silva and Tenreyro (2010, p. 53).

a more credible country. But, they have a far better chance of eliminating their domestic inflation bias - practically overnight - by joining a union with a credible monetary institution - such as the ECB. Some of the countries that joined the euro zone are understood to have acted according to this thinking.

Second, Frankel and Rose (1998) and Rose (2000) provided evidence indicating that the adoption of a common currency leads to greatly increased trade integration -- on the order of 200 to 300 per cent -- among the members of the union *over and above* that produced from fixed exchange rates among separate currencies. The conclusions that followed from this evidence were striking. Since monetary union encourages trade integration, it also encourages greater business-cycle synchronization -- through the higher trade linkages -- among the members of the union. A corollary of greater business-cycle synchronization is that monetary union itself will make asymmetric shocks less likely, reducing the advantage of a country-specific monetary policy. Moreover, by stimulating trade, monetary union was thought to boost potential output. Frankel and Rose (2002) found that a one per cent increase in trade between countries increased per capita income of the countries concerned by one-third of a percentage point.

Yet, amidst the celebrations in 2009, in Greece a shock was unfolding that, by the end of the year, would materialize into a full-blown financial crisis. Krugman (2012, p. 4) would later characterize that shock as ‘‘the mother of all asymmetric shocks – a shock that was, in a bitter irony, caused by the creation of the euro itself.’’ During the ensuing several years, the euro crisis broadened and deepened, engulfing Ireland, Portugal, Spain, Cyprus and, to a lesser extent, Italy, and threatening the sustainability of Europe’s common currency. What had started as a sovereign-debt crisis in Greece spilled over to that country’s banking system, creating twin crises. In other euro-area countries the crises originated in the banking systems and spilled over to the sovereign-debt market. Contrary to the confident view about the profession’s earlier perception about the conditions needed for a well-functioning monetary union, the crisis exposed flaws in the profession’s analysis of monetary unions.

3. Missing in Action

It was recognized early on that the architecture of the euro area did not conform to that of an optimum currency area. A basic result of the pre-euro-area literature was the need of fiscal integration among the members of a monetary union so that the effects of diverse shocks could be smoothed out through fiscal transfers. Monetary union in Europe, however, was undertaken in the absence of this basic condition; government budgets were left decentralized at the national level. It was also recognized early on that providing autonomy to national authorities involved a risk that incentives to fiscal laxity would be strengthened, creating the potential for negative spillover effects among countries (Pisani-Ferry, 2013, p. 8). Europe's response to this potential problem was twofold. First, the Stability and Growth Pact imposed limits (relative to GDP) on national fiscal deficits and the debts of the participating countries. Second, private capital markets were expected to price sovereign risk accurately, driving up interest rates on the debt of countries undertaking overly-expansionary fiscal policies, thereby limiting inter-country spillovers. The Maastricht Treaty's no-bail-out clause was meant to provide an incentive to price the risk of default accurately: under the clause, members of the monetary union that followed unsustainable fiscal policies would not be supported at the union level.

What surprises did the euro crisis provide about our knowledge about monetary unions? It was expected that the single currency would encourage integration among previously-fragmented national financial markets. That is indeed what happened, but the implications of such financial integration were not fully understood (Pisani-Ferry, 2013, p. 9). At least since the 1960s, economists had accepted the premise that financial integration, in the form of interest-rate convergence on comparable national financial instruments, would alleviate balance-of-payments crises and, thus, the need of nominal exchange-rate adjustments.[3] For this reason, the Maastricht Treaty made interest-rate

[3] This view was put forward by Ingram (1962, p. 124), who argued: "We maintain that adoption of policies deliberately designed to lead to tighter integration of international capital markets would result in a lessening of pressures on traditional foreign-exchange reserves and alleviation of balance-of-payments crises. This [conclusion] ... applied particularly to nations whose

convergence on long-term sovereign bonds a precondition to entry into the single currency area (De Grauwe, 2018, p. 122). Thus, few analysts expressed concern in 2004 and 2005 when interest-rate spreads between 10-year Greek and German sovereign bonds were close to zero. The markets apparently believed that, regardless of the Maastricht Treaty's no-bail-out clause, if things went wrong, Greece's euro-area partners would be obliged to bail out the country to maintain the cohesion of the monetary union and to prevent negative spillovers to other countries. No one foresaw that banking union was a pre-requisite for a well-functioning monetary union.[4] The potential for financial instability stemming from the negative feedback loops between banking fragility and sovereign weakness came as a surprise.[5]

The euro-area crisis, however, was first-and-foremost a banking crisis as bank failures led to feedback effects between weakened banking systems and fragile government finances. The holding of sovereign bonds by banks linked the financial sector to government's fiscal policy in a way that brought down both the financial sector and government's finances (Brunnermeier and Reis, 2019, p. 48). Banking crises in euro-area countries placed large fiscal burdens on governments, calling their solvency into question and rendering the use of counter-cyclical fiscal policy infeasible.

Why were the interconnections between banking systems and fiscal positions so strong during the euro-area crisis? There were several reasons (Shambaugh, 2012; Pisani-Ferry, 2013). First, the banking sector in the euro area is very large. At the peak of the crisis in 2012, total bank assets as a share of euro-area GDP amounted to 360 per cent, compared with less than 80 per cent in the United States. Second, banks play a much more important role in the financing of firms in the euro area than is the case for the United States; about three-quarters of total credit intermediation in the euro area is

economies are linked closely together in world markets." Ingram (1962, p. 124) added that he had in mind "the members of the European Common Market and ... the United States and Canada."

[4] See Tavlas (1993) and Dellas and Tavlas (2009) for surveys of the literature on the conditions needed for monetary unification.

[5] This point was emphasized by Pisani-Ferry (2013, p. 9), who noted: "Economists mostly believed that [financial] integration would be stabilizing."

accounted for by the banking sector, compared with about one-quarter in the United States. Third, although the largest banks in the euro area and the United States are of roughly the same size relative to euro-area GDP and U.S. GDP, respectively, the largest euro-area banks represent a much larger share of any euro-area *national* economy compared with the situation of U.S. banks. This circumstance implies that the fiscal consequences of euro-area bank failures could be large enough to bring state-solvency into question (Pisani-Ferry, 2013, p. 9). Fourth, domestic euro-area banks typically hold relatively-large shares of debt issued by their respective national governments in their portfolios, leaving the banks' balance sheets vulnerable to doubts about sovereign solvency. In contrast, U.S. banks typically hold small amounts of local and state debts on their balance sheets; U.S. banks mainly hold U.S. government debt as their ''safe'' liquid assets. Consequently, defaults by U.S. state and local governments have not involved a systemic risk to the U.S. financial system (O'Rourke and Taylor, 2013, p. 181). In the absence of a euro-area safe asset, banks in the crisis countries were exposed to the weaknesses of their sovereigns.

In the light of the close links between public-sector finances and the banking sector, and the spillovers across national borders that occurred during the euro-area crisis, it became clear that the euro-area financial architecture was incomplete. Indeed, the original architecture seemed to require the elimination of lender-of-last-resort facilities at the national level, without creating a suitable replacement at the monetary-union level (Sims, 2012). As Constâncio (2018, p. 8) stated: "It was only when the ECB stepped in, acting like a normal central bank in open market operations, that the crisis subsided and recovery could start." The euro-area banking union was created in response to the crisis. The banking union consists of two main pillars. The first pillar is the Single Supervisory Mechanism which grants the ECB a leading role in supervising banks in the euro area. The second pillar is the Single Resolution Mechanism, the main purpose of which is to ensure the efficient resolution of failing banks. Most analysts, however, view the banking union as incomplete because it lacks a common deposit insurance scheme.

In addition to exposing the vulnerability stemming from the absence of a banking union, the euro-area crisis also exposed flaws in literatures that (1) associated monetary unification with low inflation and (2) endogenous trade creation. With regard to inflation, while the ECB delivered low inflation to its member countries, the crisis revealed that there could be too much of a supposedly-good thing. Going into monetary union, it was recognized that, in the absence of nominal exchange-rate adjustment amongst the members of the single-currency area, a major cost of monetary unification is the reduced flexibility to adjust to asymmetric shocks. In the face of such shocks, real-exchange-rate adjustments in individual countries need to be brought about entirely through adjustments of productivity, and domestic prices and wages, that is, through internal devaluations. The euro-area crisis has shown, however, that it is more difficult to effectuate the needed adjustments in a low-inflation environment than had been assumed in the earlier literature on monetary integration. With the decline in inflation to near zero in the euro area, it became more difficult to achieve a given internal devaluation. For example, if inflation in a monetary union averages one per cent a year, a country that needs to regain price competitiveness on the order of twenty per cent will need to run a zero inflation rate for twenty years. If, however, inflation in the monetary union averages four per cent a year, that same country, by running a zero inflation rate, will have recovered its competitiveness in five years. In other words, an internal devaluation may be slow and costly (in terms of output loss and a rise in unemployment) in a monetary union that features a very-low inflation rate.[6] Everything else held equal, the lower the average inflation rate in a country's trading partners, the slower and more costly an internal devaluation.

In fact, consumer price inflation in the euro area averaged about one per cent during 2010 and 2020. Throughout the euro crisis (2009 to 2015) inflation in the euro area was well below that in other currency unions, such as the United States and the United

[6] The ECB's inflation objective is a year-on-year inflation rate below, but close to, 2 per cent in the medium term. Many observers considered the objective to be asymmetric, with the ECB's tolerance for lower than 2 per cent inflation greater than its tolerance for inflation above 2 per cent (Hartmann and Smets, 2018, p. 40).

Kingdom. In an assessment of the ECB's policies during the crisis, Hartmann and Smets (2018, p. 40) wrote:

> This [relatively-low inflation] may not necessarily be related to the credibility of the ECB's commitment to maintain price stability, but it may be due to doubts that the ECB had the necessary tools to fight deflation in a low interest rate environment. Not the willingness of the central bank, but its ability may have been put in doubt particularly as, compared to other major central banks such as the Federal Reserve System, the Bank of England and the Bank of Japan, the ECB was slow in applying large-scale purchases of government bonds as a monetary policy tool.

What about the idea that monetary union promotes trade integration? This feature of the euro area was singled-out as an early benefit of Europe's monetary union. For example, the 2005 ECB workshop, to which we referred in the introduction, concluded that the single currency had "augmented" trade integration "without [having created] trade diversion" (Mongelli and Vega, 2006, p. 35).[7] In fact, a main casualty of the euro-area crisis is the idea that trade-creation effects could reduce asymmetries among countries in a monetary union. Instead, increased trade integration appears to lead to regional concentration of industrial activities. The basic reason here is that trade integration tends to lead to agglomeration effects under which production becomes relatively cheaper (due, for example, to the access of firms to pools of skilled labor, which, in turn, provides employment opportunities to labor) in areas where there has been a clustering of economic activity (Krugman, 1993). These agglomeration economies, in turn, make it profitable to concentrate production so that firms can benefit from (external) economies of scale. As Pisani-Ferry (2013, p. 8) reported, the ''evidence seems to suggest that agglomeration effects [in the euro area] have been present, as the share of northern Europe (Germany, Austria, Finland and the Netherlands) in euro-area manufacturing production grew significantly since the creation of the euro. Consequently, any trade-creation effects of the euro appear to have led to reduced – instead of increased – business-cycle synchronization. Additionally, in a "mea culpa" on Rose's earlier work on

[7] Research findings presented at the ECB workshop indicated that the euro had already boosted intra-euro-area trade by between four to ten per cent, without creating trade diversion. See Mongelli and Vega (2006, p. 17).

the trade-creation effects of a common currency, Glick and Rose (2015), using post-euro-area data and several econometric methods, found no substantive, reliable and robust effect of monetary union on trade.

A final flaw in the architecture of the euro area has yet to be addressed. A well-functioning monetary union requires that current-account adjustment between surplus and deficit countries should be, at least to some extent, symmetric. If most of the adjustment is placed on the deficit countries, those countries would be forced to undertake pro-cyclical fiscal policies, amplifying economic contractions. Despite several attempts to provide mechanisms for symmetric external adjustment among euro-area members, adjustment has been asymmetric.

Table 1 provides relevant data. It reports current account positions from 2008 to 2017 of four crisis countries, Greece, Ireland, Portugal, and Spain, which we call "the South." We chose 2008 as the starting year because the current account deficits relative to GDP of each of the crisis countries reached their peaks in 2008. We chose 2017 as the ending year because by that year the crisis had ended. For purposes of comparison, the Table also shows the current-account positions of four countries which we call "the North" -- Austria, Germany, Luxembourg, and the Netherlands. We selected the four countries representing "the North" because their current account surpluses, relative to GDP, were the highest in the euro zone in 2008.

Three points about the data in Table 1 are important to highlight. First, notice that in 2008 large current-account surpluses in the countries of "the North" had accumulated and large current-account deficits in the countries of the "the South" had accumulated. Neither one of these outcomes was desirable in a well-functioning monetary union.

Second, notice that the crisis countries underwent substantial adjustment; the average current-account balances of these countries improved by over fourteen percentage points of GDP. Also notice that adjustment has been asymmetric; all of the adjustment was made by the countries of the South. In fact, the average current-account

surpluses of the North improved, the opposite of what would be expected under a symmetric fixed exchange-rate system. In an effort to promote symmetric adjustment, in 2011 the European Union (EU) introduced the Macroeconomic Imbalance Procedure (MIP), the aims of which are to identify, prevent, and address imbalances -- including current-account imbalances and high external debts -- that could adversely affect a particular EU country, the euro area, or the EU as a whole. Based on developments to date, however, the problem of euro-area asymmetric adjustment has not been adequately addressed in the euro-area's architecture.

Third, the euro crisis provided an unanticipated benefit to large current-account-surplus countries, such as Germany. In 2008, the year before the outbreak of the euro crisis, Germany ran a current-account surplus of 5.6 per cent of GDP (Table 1). In 2017, the German current-account surplus had increased to 8 per cent of GDP; in fact, in 2015, the final crisis year, the German current-account surplus had risen to 8.6 per cent of GDP. Typically, a country with a large and rising external surplus would be expected to experience an appreciating exchange rate to facilitate external adjustment. That would have likely happened had Germany retained its domestic currency, the deutsche mark. But Germany no longer had a national currency. In light of the crisis, the euro *depreciated*, from about 1.5 US dollars per euro at the start of the crisis in November 2009, to 1.1 US dollars per euro in December 2015. Consequently, everything else equal, the euro's behavior added to Germany's current-account surplus during the crisis years, the opposite of what would have been expected to occur.

4. Overview of the Papers in this Issue

We noted above that a monetary union with very low inflation rates can make it especially difficult for a member of the union to achieve an internal devaluation to restore competitiveness. This circumstance reflects the fact that nominal wages and prices tend to be sticky in a downward direction. Milton Friedman's (1953) case for flexible exchange rates rested, in part, on the idea that, when prices and wages are sticky and Keynesian

demand shocks are the primary source of macroeconomic volatility, a regime of flexible exchange rates outperforms a regime of flexible rates. In the paper, "How does the ZLB affect the Properties of Alternative Exchange Rate Systems?" Hiona Balfoussia, Harris Dellas, Dimitris Papageorgiou, and Evangelia Vourvachaki, use a standard, two-country DSGE model with multiple shocks and a Taylor rule to study the properties of alternative exchange-rate regimes in a variety of economic environments. The authors find that the introduction of the Zero Lower Bound (ZLB) does not contradict this result. The ranking of the stability properties of alternative exchange-rate regimes that obtains in normal monetary environments may be reversed for some individual disturbances when the ZLB constraint is present. However, the ranking obtained on the basis of all the shocks together is invariant to the existence of a ZLB. Thus, the authors conclude that the existence of a ZLB constraint does not, by itself, suffice to make policymakers rethink their choice in international monetary arrangement.

Why was inflation in the euro area so low after the eruption of the crisis? One important reason was that monetary and fiscal policies were tight, especially in comparison with those policies in other large currency areas, such as the United States and the United Kingdom. For example, the Federal Reserve and the Bank of England both began quantitative easing in 2010. The ECB did not begin its quantitative easing until 2015, despite the fact that the euro area was in a crisis between 2010 and 2015. In the paper, "Wage Growth and Inflation in Europe: A Puzzle?," Vizhdan Boranova, Raju Huidrom, Sylwia Nowak, Petia Topalova, Volodymyr Tulin, and Richard Varghese point out that during the euro-area crisis, wages in many European countries rose faster than productivity, yet underlying inflation remained low. To examine why wage increases were not passed on to underlying inflation, those authors used a pooled VAR to study the relation between wage growth and core inflation for twenty-seven European countries. They found that the impact of wage growth on inflation weakened after the beginning of the crisis in 2009. Specifically, the authors found that wage increases have a smaller effect on core inflation when inflation and inflation expectations are subdued, corporate profitability is higher, firms have access to cheaper inputs, including capital goods, and

firms are exposed to strong competition. These factors helped reduce the passthrough from wage growth to core inflation during the crisis period compared with the pre-crisis years.

As mentioned in Section 3, the euro-area crisis was characterized by feedback loops between banking systems and fragile government finances in individual countries. In the paper, "Cross-Country Spillovers of National Financial Markets and the Effectiveness of ECB Policies During the Euro Area Crisis," Heather D. Gibson, Stephen G. Hall, Deborah GeFang, Pavlos Petroulas, and George S. Tavlas investigate the spillover effects between sovereign ratings and sovereign spreads for five crisis countries -- Greece, Ireland, Italy, Portugal, and Spain -- and *the additional* spillover effects *among* those countries. Using a spatial modelling set-up, the authors provide evidence that shocks in several countries at the same time led to significant cross-country spillovers, accentuating the feedback loops between sovereigns and banks in the individual countries. The authors also find that ECB announcement effects of its intended interventions in financial markets played an important role in ameliorating the crisis. The authors provide evidence that the announcement by ECB President Mario Draghi on July 26, 2012 that the ECB would do whatever it takes to preserve the euro was especially important.

In March 2015, the ECB launched a public sector purchase programme (PSPP), the objective of which was to provide additional monetary stimulus in an environment in which further cuts in short-term interest rates were constrained.[8] Through portfolio rebalancing and signaling effects, the PSPP put downward pressure on long-term interest rates and flattened the yield curve (Hartmann and Smets, 2018, p. 21). In the paper, "Central Bank Sovereign Bond Purchases in the Euro Area, the Random Walk Hypothesis and Different Measures of Risk," Ansgar Belke, Daniel Gros, and Farzaneh Shamsfakr assess the effectiveness of the PSPP. The authors argue that government bond purchases under the PSPP by national central banks of their own sovereigns constituted a leveraged

[8] The ECB moved the interest rate on its deposit facility rate (DFR) into negative territory in June 2014.

buyback, reducing interest rates on those bonds. The authors provide evidence that rejects the hypothesis that the PSPP's announcement constituted a random walk -- that is, that the announcement produced a permanent effect on interest-rate spreads. A similar finding about the non-permanent effect of thePSPP was obtained in the above-mentioned paper by Gibson *et al.*

Whereas the foregoing papers investigated the effects of the ECB's policies several years after the outbreak of the euro crisis in 2009, in the paper, "Monetary Policy Expectations and Sovereign Risk Dynamics in the Eurozone", by Theodoros Bratis, Nikiforos Laopodis and Georgios Kouretas, the authors focus on the effects of ECB policies from 2009 to 2014. Specifically, the authors investigate the possible existence of dynamic linkages among sovereign bond yield spreads (both short- and long-term) and policy rates. The econometric analysis focuses on two subperiods, the period of high crisis (November 30, 2009 to July 25, 2012, with the latter date corresponding to the day prior to the Draghi announcement) and the period of reduced (but not of eliminated) financial tensions (July 26, 2012 to April 30, 2014). For the first subperiod, the authors find significant spillovers from the OIS spread to almost all sovereign spreads, at both the mean and volatility levels. Therefore, during the crisis period, expectations of monetary surprises led bond spreads and their corresponding volatilities to increase compared to the period of reduced tensions, regardless of the maturities of bond yields. Overall, the authors find evidence that monetary policy and sovereign risk were highly linked during the crisis period and, thus, the interest-rate monetary policy transmission mechanism was effective in reducing yield spreads in the period of reduced financial tensions.

Although the ECB began taking easing measures -- including a Securities Markets Programme (SMP) under which the ECB intervened in the sovereign bond markets of crisis countries during 2010 and 2012 -- fiscal policies in the euro area during the crisis were not, for the most part, counter-cyclical. Several papers in this issue focus on the role played by fiscal policy during the crisis.

In their paper, “Fiscal Policy Uncertainty and its Effects on the Real Economy,” Joscha Beckmann and Robert Czudaj develop a new indicator of fiscal-policy uncertainty based on disparities among the fiscal projections of professional forecasters to assess whether such uncertainty acted as a constraining influence on economic activity. Applying that indicator to German and Italian data, and using a VAR methodology, Beckmann and Czudaj find that fiscal-policy uncertainty had a negative effect on economic activity during the crisis.

In the paper, “How Loose, How Tight? A Measure of Monetary and Fiscal Stance for the Euro Area,” Nicoletta Batini, Alessandro Cantelmo, Giovanni Melina, and Stephania Villa construct a model-based dynamic monetary and fiscal conditions index (DMFCI) to assess both the separate and the combined monetary and fiscal policy stance for both the euro area as a whole and for its three largest members -- Germany, France, and Italy. The authors find that, while the combined policy stance was loosened in the aftermath of the global financial crisis, it was tightened around 2011. The combined policy stance was then loosened around 2014. The authors also find that after 2013, monetary policy carried the entire burden of providing stimulus to counteract the contraction. Finally, Batini *et al.* show that, during the crisis, fiscal policy was counter-cyclical in France, and restrictive in Germany and (especially) in Italy.

In the initial stage of the Covid crisis, the ECB and the national fiscal authorities of euro-area countries followed a very different course from that followed in the initial stage of the euro-area sovereign-debt crisis. In particular, in early 2020, macroeconomic policies turned highly expansionary in order to combat the effects of Covid. In the paper, “Pandemic Shocks and Fiscal-Monetary Policies in the Eurozone: COVID-19 Dominance During January-June 2020,” Yothin Jinjarak, Rashad Ahmed, Sameer Nair-Desai, Weining Xin, and Joshua Aizenman estimate a multifactor model for changes in credit default swap (CDS) spreads over 2014 to June 2019 and extrapolate the model-implied changes in CDS spreads to the early months of the Covid crisis. The authors find evidence that the broadening scope and increased intensity of ECB quantitative easing policies, and

expansionary fiscal policies, substantially reduced the dispersion of euro-area sovereign spreads.

Would fiscal transfers from the core euro-area countries to the crisis countries have boosted real GDP in the latter group of countries during the crisis? As discussed, this view is a basic conclusion of the optimum-currency-area literature. This conclusion has been reinforced by the recent literature on "fundamentals-driven" liquidity traps, according to which fiscal multipliers can be much larger at the ZLB than when the ZLB does not bind. In the paper, "Liquidity Traps in a Monetary Union," Robert Kollmann provides evidence that cautions against the idea of strong cross-border fiscal transmission in a monetary union at the ZLB. Using a two-country New Keynesian model of a monetary union, Kollmann finds that a rise in government purchases in an individual country has a weak effect on GDP in the rest of the union if the liquidity trap is caused by self-fulfilling pessimism about future inflation.

During the euro-area crisis, it became evident that the increased financial integration that had been achieved during the euro's first decade was giving way to financial fragmentation and the retrenchment of borrowers and lenders within national borders.[9] In Section 3, we pointed out that one response to this circumstance has been the creation of a banking union. A major consequence of the banking union has been to provide the ECB with major responsibilities with regard to macroprudential policies. Nevertheless, many core policy areas that may impact on financial stability remain under national responsibility.

In the paper, "Why Macroprudential Policy Matters in a Monetary Union," Claudia Buch, Manuel Buchholz, Katharina Knoll and Benjamin Weigert discuss the role of macroprudential policy in a monetary union. Using panel models, the authors provide evidence on financial integration and adjustment to spillovers in the euro area. They show that domestic conditions matter for the exposure of banks and banking systems to

[9] This point was made by Pisani-Ferry (2013, p. 11).

liquidity shocks, providing support for the view that there is room for macroprudential policy actions to be taken at the national level to mitigate risks to financial stability. Buch *et al.* show that, by reducing the probability and the impact of a financial crisis, effective macroprudential policy protects the balance sheets of governments and -- ultimately -- of central banks. However, the authors point out that national authorities may lack the incentive to act early and sufficiently to address emerging vulnerabilities. Therefore, they conclude that policies at the supranational level have an important role to play in macroprudential policy.

Apart from overly-restrictive fiscal and monetary policies (the latter being prevalent in the early stages of the crisis), domestic feedback loops between sovereign bonds and banks, and contagion effects among countries, what other factors may have contributed to the severity of the crisis in Europe's monetary union? In their paper, "Institutions and Macroeconomic Performance in the Years of the Crisis: Core vs Periphery Countries in the Eurozone" Tryphon Christou, Apostolis Philipoppoulos and Vangelis Vasilatos investigate the impact of differences in long-run structural factors in accounting for the deep and prolonged economic downturn in the crisis countries. Specifically, the authors incorporate the effects of institutions, as measured by the degree of security of property rights, into a neoclassical growth model to examine differences in those institutional factors on the economic performance of twelve euro-area countries. The authors find that differences in institutional quality between the crisis countries and other euro-area countries help explain the different impact that the 2008 global financial crisis had on core and peripheral euro-zone countries. A general result found by the authors is that core institutions, in the form of ill-enforced property rights, are fundamental causes of cross-country asymmetries in trends and cycles.

5. Concluding Remarks

Our hope is that these contributions will help improve the understanding of the nature of Europe's monetary union, the underpinnings of its crisis, especially the roles

played by financial markets, macroeconomic policies, and their interconnections, and the remaining changes that need to be made to the monetary union so that crises can be prevented in the future.

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Table 1: Current Account Adjustment

	% GDP	% GDP	Change
	2008	2017	
North Countries			
Austria	4.5	1.9	-2.6
Germany	5.6	8.0	2.4
Luxemburg	7.4	5.0	-2.4
Netherlands	5.0	10.2	5.2
Average	5.6	6.3	+0.7
South Countries			
Greece	-15.1	-0.8	14.3
Ireland	-6.9	12.5	18.4
Portugal	-12.1	0.5	12.6
Spain	-9.3	1.9	11.2
Average	-10.9	3.5	+14.4