

The Eurozone Crisis and its Implications for Agriculture in Selected Regions of the World

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Keywords: Agriculture, Economic Crisis, Euro, European Union, Eurozone, Transition Economies

This set of articles examines possible impacts of the extended and ongoing economic difficulties experienced in the Eurozone on agriculture in various part of the world since 2010. Perhaps no other region has been as deeply affected by the economic crisis as the 17 member states of the European Union (EU) that use the euro as their common currency. The global economic crisis that started in late 2008 exposed latent and fundamental problems in the design and the institutions of the EU in general and those associated with the common currency in particular. Effects of the economic crisis continue to reverberate across the world, but particularly across the Eurozone and nations with close economic links to the area. Until recently, immediate concerns about the survival of the common European currency had somewhat abated. However, the mixed outcome of the Italian elections in February 2013 and the crisis in Cyprus that manifested itself the following month provided reminders that serious questions remain about the future path of integration among European nations, the financial sustainability of the social and economic model used in many European nations since WWII, and even whether and in which form the EU itself will endure.

The 17 members of the Eurozone are Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Portugal, Slovakia, Slovenia, Spain, and The Netherlands. The ten remaining EU members continue to use their own currency. While Denmark and the United Kingdom have formal opt-outs, Bulgaria, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, and Sweden are expected to adopt the common currency upon meeting fiscal and monetary convergence criteria, as required by EU treaties.

Articles in this Theme:

A Broad Economic Overview of the Eurozone Crisis

What the Eurozone Problem Means for U.S. Agricultural Exports

Exposure of EU Farmers to the Financial Crisis

Implications of the Eurozone Crisis for Agriculture in the Europe and Central Asia Economies in Transition

The ongoing Eurozone crisis also affects the agricultural sector through a number of pathways, including a decline in credit access, a reduced EU budget and declining funds allocated to the Common Agricultural Policy (CAP), a drop in aggregate demand as a direct result of the crisis, and changes in export demand for agricultural products associated with exchange rate dynamics.

The first article, by Evert Van der Sluis of South Dakota State University and Maria Parlinska of Warsaw University of Life Sciences in Warsaw, Poland, provides an overview of Eurozone crisis. The authors stress the economic importance of the transatlantic relationship in a global context, discuss efforts among European nations to integrate their economies, and the intended role of the common currency to unite Europe. The article also explores the origins of the multifaceted Eurozone crisis, selected responses in dealing with the crisis, and links of the crisis to the agricultural sector.

The second article, by Mathew Shane of the Economic Research Service of the U.S. Department of Agriculture and Terry Roe of the University of Minnesota, looks at the consequences of the Eurozone problems for U.S. agricultural exports. Using an international economic model, the authors project the effects of the Eurozone crisis on the prospects for U.S. agricultural exports, based on various assumptions and scenarios. Their results indicate U.S. agricultural exports are likely to continue to increase, even in the presence of potential substantial drops in the value of the Euro relative to the dollar and a Gross Domestic Product (GDP) decline in the EU. These results are largely driven by the increased demand stemming from economic growth in developing countries. However, Shane and Roe also show that U.S. agricultural exports would only increase modestly in a scenario in which the Euro would be at parity and the EU would experience no economic growth for an extended period of time.

In the third article, Martin Petrick and Mathias Kloss from the Leibniz-Institute of Agricultural Development in Central and Eastern Europe (IAMO) in Halle (Saale), Germany, investigate the extent to which EU farmers have been affected by the

crisis. They find that a minority of EU farmers had difficulty accessing credit since the start of the Eurozone crisis. In nations most affected by the crisis, low levels of credit use and limited financial leverage combined with declining interest rates kept farmers from experiencing excessive financial risk. As an aside to their findings, the authors note that the low level of financial penetration in the agricultural sector in nations most affected by the crisis indicates the presence of deeper structural problems in agricultural banking, and that EU agricultural credit markets are less integrated than anticipated. Petrick and Kloss further suggest that institutional weaknesses in the agricultural banking sector may limit structural change and inhibit further modernization in agriculture, which indicate a need for institutional reform in EU agricultural banking. Finally, the authors point out that agricultural policy measures and sector-specific rescue programs at the EU level provided farmers with a reliable stream of direct payments, thus mitigating the most severe impacts of the crisis for farmers.

In the final article, William H. Meyers and Kateryna Goychuk of the University of Missouri-Columbia, consider the effects of the Eurozone crisis on agriculture in the Europe and Central Asia Economies in Transition

region. By considering trade, investment, credit flow, and remittance flow, the authors suggest that the region is negatively affected and remains vulnerable to economic shocks in the Eurozone. While smaller than those of the 2008-09 financial crisis, the authors find that the negative economic impacts of the Eurozone crisis have significantly dampened these nations' abilities to recover from the 2009 recession. Meyers and Goychuk also note that the nations most affected by the Eurozone crisis are those most closely integrated with Eurozone economies. The authors further note that, while it is difficult to quantify the impacts on agriculture as a particular sector, the unavailability or lack of access to credit is expected to have a more profound impact on the agricultural sector in the region than the reduction in demand due to the crisis, except for those countries in the region that heavily rely on high-value exports to EU markets.

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A Broad Economic Overview of the Eurozone Crisis

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JEL Classification: F00, F15, Q17, Q18

Keywords: Agriculture, Banking Crisis, Contagion Effects, Economic Crisis, Euro, European Integration, European Union, Eurozone, International Competitiveness, Sovereign Debt

This article is one of four on the theme of the Eurozone crisis and its possible implications for agriculture in different parts of the world. In this paper, we provide a broad context of the economic difficulties of the Eurozone, the effects of which were felt most severely since 2010. We set the stage for this issue by examining the mutual dependence between the United States and European Union (EU) economies, economic integration efforts among European nations and the role of the common currency therein, the origins of the multifaceted Eurozone crisis and selected responses in dealing with the crisis, as well as links to agriculture. Naturally, this summary assessment of the Eurozone crisis is far from complete due to the long history preceding the crisis, the complex nature of the difficulties, the many ongoing uncertainties, and possible future policy responses.

U.S. - EU Economic Comparison and Links

The U.S. and EU economies are comparable in size. In 2012, the Gross Domestic Product (GDP) of the EU was about \$16.2 trillion, while the economic output of the U.S. was approximately \$15.7 trillion (World Fact Book, 2013). By comparison, China's GDP was approximately \$8.3 trillion during the same year, but China's economic output increased considerably while that of the EU declined during 2012. Jointly, the EU-27 market consists of over 500 million consumers, resulting in a per capita GDP of \$34,500, compared to \$49,800 in the United States. However, per capita incomes vary greatly among EU member states, from a low of \$13,000 to a high of \$82,000, suggesting that growth opportunities remain, particularly among relatively new member nations.

While the world's most rapid economic growth opportunities are believed to exist in parts of the world outside of Europe and the United States, the two continue to have the world's largest and most deeply integrated mutual trade and investment relationship (Office of the U.S. Trade Representative, 2013). The close ties are illustrated by the level of merchandise trade jointly contributed by the United States and the EU-27, which made up 42% of the total world exports and 52% of imports in 2011 (World Trade Organization, 2012). The close economic ties have recently led to the start of formal negotiations for the creation of a transatlantic free trade agreement.

From a U.S. perspective, bilateral U.S.-EU trade is fairly well balanced. In 2012, 21% of all U.S. goods and services exports found their way to the EU, and 19% of U.S. imports originated in the EU (Office of the U.S. Trade Representative, 2013). From the EU point of view, 18% of EU exports were destined for the United States, while 11% of EU imports originated in the United States (Eurostat, 2013).

U.S. agricultural trade with the EU is less well-balanced. The value of U.S. agricultural imports from the EU is about twice as large as U.S. agricultural exports to the EU. U.S. exports to the EU of agricultural products amounted to \$8.9 billion in 2012, or about 6.5% of total U.S. agricultural exports—a decline from 2000, when the EU accepted about 15% of total U.S. agricultural exports. Nevertheless, the EU consistently ranked as the fifth most important destination for U.S. agricultural exports for the past 10 years. Key products include tree nuts, soybeans, processed fruits and vegetables, wine and beer, and animal feeds.

In 2012, the U.S. imported \$16.6 billion in agricultural products, or 16.1% of total U.S. agricultural imports. The relative importance of agricultural imports from the EU decreased only slightly from 2000 levels of around 21% of total U.S. agricultural imports. Key imports include wine and beer, essential oils, snack foods, processed fruits and vegetables, and animal feeds.

U.S. Foreign Direct Investment (FDI) in the EU amounted to \$2.1 trillion, and vice versa, EU FDI in the United States totaled \$1.6 trillion in 2011, the latest year for which data are available (Office of the U.S. Trade Representative, 2013). U.S. FDI in the EU is mainly concentrated in nonbank companies, finance and insurance, and manufacturing, while EU FDI in the United States is clustered in manufacturing, finance and insurance, wholesale trade, and the information sector. Mutual investments in agriculture include those in land and agribusiness operations. Also, several European banks provide financing for agricultural loans in the United States.

European Integration Efforts

Fundamental to understanding the move toward increased integration among European nations is the geopolitical goal to halt historically recurrent intra-European conflicts and to stave off possible future wars. The “European project” involves an international system of checks and balances, and all EU decisions and procedures are based on a series of treaties ratified by member-nations.

The predecessor of the EU, the European Economic Community (EEC), was founded by the 1957 Treaty of Rome, which, in turn, followed the European Coal Steel Community, established by the 1951 Treaty of Paris. The latter emerged from the Organization for European and Economic Cooperation, created to oversee the implementation of

the Marshall Plan. Even earlier European integration efforts took place prior to World War II, by way of the Pan-European movement led by the Austrian count Coudenhove Kalergi in 1923, and the notion of a federation of European nations raised by French Prime Minister Aristide Briand in 1929. These efforts were thwarted with the rise of fascism and the war.

The EEC was a common market, which, in contrast to a free trade agreement, requires each member nation to agree to common external tariffs. Over time, the common market evolved and additional economic integration was achieved through the use of free trade in industrial goods, a common set of prices for agricultural products within the EEC, and broadening the membership from the original six to the current 27 nations.

Formal discussions on a common currency took place as early as the 1970s, when the Werner Report outlined a plan for establishing an Economic and Monetary Union in Europe by 1980. However, these early discussions failed and were abandoned. In 1989, the Delors Report planned for the development of a common currency through gradual moves toward closer economic coordination among EU nations and toward full implementation of the European Monetary System with an independent European Central Bank (ECB).

German reunification in 1990 provided an unexpected opportunity for accelerating common currency plans and it led to the 1992 Treaty on the European Union (Maastricht Treaty). In addition to outlining the current form of the EU with its “single market” for goods, services, labor, and other inputs without international trade obstacles within the EU, the Treaty provided the legal foundation and design of the euro currency by setting “convergence criteria” that EU nations would have to meet to become members of the European

Monetary System (EMU). The criteria specified in Article 104c of the Maastricht Treaty hold that a nation’s actual government deficits would not exceed 3% of GDP, and that its government debt would be below 60% of GDP. The criteria also set limits on inflation, long-term interest, and national currency exchange rates.

While the criteria for joining the common currency were well-defined, in reality the threshold levels were flexible. As a result, the process involved making political compromises and sidestepped critically important economic membership criteria. For example, political necessity held that the six EU founding members would also be original Eurozone members, despite their inability to meet agreed-upon economic criteria. Furthermore, Europeans’ unwillingness to pay direct taxes to fund an EU budget sufficiently large to counteract regional imbalances and economic shocks led to an absence of a central fiscal authority, essential for well-functioning currency unions.

When the euro was implemented in 1999, Eurozone nations were less integrated than prescribed by the Werner and Delors reports, and, moreover, EU leaders further weakened the financial and macroeconomic rules of the Stability and Growth Pact. The latter provides a framework for coordinating national fiscal policies in the EU, and serves to safeguard sound public finances, based on shared EU interest. Thus, while the political goal of implementing a common currency was achieved, there was no central fiscal agent, no effective budget discipline enforcement, and no clearly defined path toward further economic convergence.

The Eurozone Crisis

From its beginnings, the flaws in the design of the common currency were pointed out by a number of economists, but its inherent problems were not fully exposed until soon after the

beginning of the global economic crisis set in motion by the 2008-09 recession. For example, Papadimitriou, Wray, and Nersisyan (2010), and Veron (2012) document structural design issues of the common currency. Since then, it has become increasingly clear that the problems plaguing the Eurozone are not only structural and multifaceted, but somewhat country-specific as a result of the remaining disparity within the region. Yet they are highly interconnected due to the policies built around the common currency.

Kirkegaard (2011) and others have identified distinct, but overlapping and mutually reinforcing crises. One relates to the design of euro area institutions, discussed earlier. Second, excessive debt levels among some Eurozone nations made it impossible to service their sovereign (nation-specific) debt without further increasing their financial obligations to their bond holders. The combined problems of euro-denominated sovereign debt and the inability of the ECB to guarantee the sovereign debt led to concerns that regional financial instability would be transferred to other nations, closely linked asset markets, and financial institutions within and outside of the Eurozone. To limit such “contagion” effects, financial rescue packages collectively supported by other Eurozone members and the International Monetary Fund, combined with sovereign bond purchases by the ECB and domestic policy reforms (as well as debt restructuring in the case of Greece), temporarily enabled the most deeply affected nations of Greece, Portugal, Ireland, Italy, and Spain to fulfill their international financial obligations.

Third, the Eurozone faced a banking crisis initiated by real estate booms in Ireland and Spain. The global financial crisis created a “sudden stop” of the private capital inflows once private investors recognized that risks had been underestimated and interest

rates increased, which led to a collapse of real estate markets. The large size of the Eurozone banks relative to their home nations’ economic output made it impossible for the heavily indebted home nations to guarantee the debt. Moreover, the banks were already highly leveraged, and much of the bank debt was issued by their home governments.

While the banking crisis had appeared to be somewhat under control, it recently manifested itself in the case of Cyprus, whose main banks had assets far exceeding that nation’s annual economic output, but a significant part of the assets consisted of previously restructured Greek sovereign bonds. As in previous cases of over-leveraged financial institutions, policy makers were faced with a difficult choice of either rescuing the banks and thereby jeopardizing sovereign solvency, or refusing rescue and risking severe economic downturns. While Cyprus’ economy is very small relative to that of the Eurozone as a whole, this recent manifestation of the crisis may have far-reaching consequences, in that bank creditors may be expected to bear part of the costs of bank recapitalization in addition to or instead of the European Stability Mechanism.

A fourth crisis was in the balance of payments due to competitiveness disparities and “asymmetric shocks” internal to the Eurozone. That is, Eurozone countries faced country-specific shocks, including fiscal and current account imbalances in Greece, a surge in credit and banking crises in Ireland and Spain, and productivity growth in Portugal and Italy. Over a decade prior to 2008, current account balances of both the EU, as a whole, and the Eurozone, in particular, obscured rising deficits of Greece, Ireland, Italy, Portugal, and Spain, offset by increased German surpluses. While core nations—such as Austria, Finland and Germany—improved their asset positions, countries in the

periphery—Greece, Ireland, Italy, Portugal, and Spain—accumulated large net foreign liabilities. Sinn and Valentinyi (2013) note that the current account imbalances within the Eurozone were made worse by the common currency because it eliminated exchange risks, provided incentives for investors to ignore country-specific investment risks, and created unrealistic expectations about economic convergence between core and periphery nations. The artificially low interest rates in the periphery attracted capital movements from the core, and resulted in current account deficits accompanied by rapidly rising prices and so undermined these nations’ competitiveness.

In their efforts to improve their competitive position without exiting the euro, periphery nations were unable to devalue their currency for the purposes of improving their current account imbalances and enhancing their competitiveness. Instead, they were forced to bring about devaluation by decreasing prices and costs (including wages) using deflationary macroeconomic policies. As described by De Grauwe (2012), such policies not only lead to long and painful periods of recession and budget deficits, but are also prone to extended periods with high unemployment, protracted deflationary spirals, possible additional sovereign debt and banking crises, and social unrest. On the other side, cost and price competitive core nations (such as Germany) that had experienced high productivity growth over the decade prior to the crisis were unable to appreciate their currency to help restore internal trade competitiveness and balance within the Eurozone.

Perhaps more important than economic features are the political aspects of the Eurozone crisis. European nations and people neither agree on the causes of the crisis nor on the path forward. The prevailing view in core nations (predominantly in

northern parts of the Eurozone) links the crisis to a lack of enforcement of rules, whereas the predominant view in the periphery is that the crisis is the result of systematic flaws. Further, the core nations' dominant view is that austerity measures are the preferred policy response to the complex economic crisis, whereas the view of the periphery nations is that such policies are counterproductive and cannot be supported by the limited availability of political capital. Thus, the crisis of the common European currency appears to reflect a search for a common European purpose.

Effects of the Crisis on Other Regions

Findings by the IMF (2012) and fairly similar ones by Maplecroft (2012) indicate that if contained, a continued Eurozone crisis will likely have limited effects on areas outside of Europe. However, without economic growth, the crisis will not only linger in the Eurozone itself but also dampen economic growth in other areas of Europe and nations across the globe tied to Europe through trade and investment links. Due to the intensity of linkages, spillover effects of a possible euro collapse would likely have the most severe impacts on Europe's emerging markets, followed by the advanced economies in Europe, and nations of the Commonwealth of Independent States, while impacts on the United States and Canada would be relatively minor.

Nelson et al. (2012) stated that the implications of the Eurozone crisis for the United States and for the U.S.-EU cooperation are difficult to assess, but also suggest that United States exposure to economic events in Europe—while less than the EU's regional trading partners—is considerable due to the two economies' size and depth of integration. The authors suggest that a possible euro depreciation relative to the dollar might increase the U.S. trade deficit

with the EU, and also point out that uncertainty in the Eurozone may create a "flight to safety," which might further appreciate the dollar relative to the euro, decrease U.S. Treasury yields, and increase U.S. stock market volatility.

Policy Responses to the Eurozone Crisis

Policymakers have mainly focused their responses to the Eurozone crisis on efforts to develop solutions for sovereign (nation-specific) debt and banking crises, and, more recently, to strengthen the institutional setting of the EU and Eurozone. Increased funding for and the consolidation of temporary institutions into the permanent European Stability Mechanism in 2012 have improved the financial stability of the most indebted Eurozone nations. Also, as a step toward the creation of a banking union, the ECB has a new supervisory role over Eurozone banks. However, most important for dramatically reducing the fear of a Eurozone collapse was the ECB's long-anticipated decision to commit itself to supporting sovereign bond markets. For example, De Grauwe (2011a; and 2011b) suggested earlier that market confidence would be improved by the ECB commitment to buy sovereign bonds. Similar calls were made by Wolf (2011). By announcing itself as a lender of last resort, bond yield spreads (the interest rates on a government bond compared to that of very solid status benchmark bonds, such as German bonds) among Eurozone nations that had emerged since the start of the Eurozone crisis dramatically reduced. One of the most intractable problems—the large, internal imbalances within the Eurozone—has thus far not been dealt with in an adequate manner. As mentioned, efforts to regain competitiveness have focused on devaluing through lowering prices, wages, and production costs in periphery nations and less

on conducting the reverse in core nations. Sinn and Valentinyi (2013) noted that these policies have had only minimal effects on bridging the competitiveness gap between periphery and core nations. Furthermore, there appears to be an increasingly widespread realization that the controversial austerity policies consisting of spending cuts and tax increases may have worsened and prolonged the Eurozone crisis by dampening economic growth and causing historically high unemployment levels in many Eurozone nations, and thereby further increased debt burdens among households, firms, and governments. Various economists have proposed alternative solutions to the austerity policies and have suggested ways to help enable nations in the periphery to regain competitiveness. For example, Wyplosz (2013) and others proposed a combination of prioritizing economic growth, restoring the banks' ability to lend, and replacing the current austerity policies.

EU Agriculture

A key component of the European project has centered on the Common Agricultural Policy (CAP) with its multifold objectives to increase agricultural productivity, ensure a fair standard of living for farmers, stabilize markets, guarantee regular food supplies, and assure reasonable prices for consumers. While these objectives have evolved to include broader objectives such as those affecting the environment and rural development, agriculture is perhaps the most integrated sector in the EU as a result of the longstanding EU-wide agricultural policy.

Because the agricultural sector is heavily influenced by global market conditions, sector-specific implications of the ongoing crisis are difficult to assess on the basis of conditions prevailing within the Eurozone only. Global demand for agricultural products is strongly affected by market

conditions in especially rapidly growing economies such as China. However, China's ability to export its own products is also deeply affected by European consumers' purchasing power and their ability to import Chinese products.

Since the start of the crisis in late 2008, the Eurozone as a whole has maintained its global competitiveness due to some depreciation of the euro relative to other major currencies such as the U.S. dollar. Also, economic contraction in the EU has placed pressures on the overall EU budget (amounting to about \$78 billion in 2013), and has provided opportunities for reducing the costs and improving the efficiency of the CAP (which uses 40% of the total budget), as proposed by, for example, Tangermann (2011). However, attempts to reform the CAP have been overshadowed by the Eurozone crisis itself. The EU budget represents only 1% of the EU's national income, and it pales in comparison to funds needed to stabilize economic conditions in the Eurozone following the crisis. Efforts to reduce CAP funding are further undermined by conflicts over the internal distribution of CAP funds allocated to new and old EU members. Also, unlike in the United States, the EU remains committed to its system of de-coupled direct government payments as agricultural commodity supports. In the EU, the direct payments are viewed not only as stabilizing farm incomes, but also encouraging producers to comply with environmental programs. An additional uncertainty is how the European Parliament will allocate funds for the CAP in its new role of co-decision maker, jointly with the Council of Ministers which, heretofore, was the only entity controlling the CAP budget. The implications of the co-decision are unclear. On the one hand, it affords improved transparency; but, on the other hand, it complicates the political process.

Last but not least are poor credit

conditions affecting the agricultural sector in Europe. Increased capital requirements for banks associated with the prolonged difficulties in the EU's banking sector have affected the ability among agricultural producers and agribusinesses to access credit. Similar to other industries, the number of bankruptcies in the agricultural sector in the EU appears to have increased.

Continuing Challenges to EU Agriculture

One of the purposes for the development of the common European currency was to integrate the economies of the EU through encouraging trade and advancing economic growth. Yet the ongoing difficulties in the Eurozone may undermine further European unity. The threat of an immediate disintegration of the euro has declined due in part to an agreement among European leaders to embark on a banking union and because of the ECB's stated commitment to support sovereign bond markets. However, economic growth prospects remain dim throughout the EU, and economic and social conditions in the periphery nations are dire. Further, there is no agreement on the most appropriate policies needed for further improvement in economic conditions and for making the euro more resilient to possible further set-backs.

To an extent, the European agricultural sector reflects broader problems within the Eurozone and the EU overall. The CAP long served successfully as a tangible element of a common European purpose, but it may not be able to escape budget cuts as a result of the economic difficulties. Further, policymakers remain divided over the future direction of the CAP as well as over the geographical distribution of funds associated with the CAP. Finally, agricultural producers' access to credit has been limited due to the banking crisis. While agricultural market cycles may not necessarily coincide with macroeconomics

cycles, the crisis in the Eurozone is expected to continue to be a problem for agriculture within Europe and the economies of its trading partners.

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What the Eurozone Problem Means for U.S. Agricultural Exports

Mathew Shane and Terry Roe

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Keywords: Agricultural Commodity Prices, Depreciation, Euro, European Union, Financial Crisis, Sovereign Debt, U.S. Agricultural Exports, U.S. Trade-weighted Exchange Rate

The Eurozone problem is the long-term consequence of using a common currency for a set of countries which do not have a common monetary and fiscal system. Its manifestation is sovereign debt crises, rising interest rates on country debt, slow or negative growth, and high unemployment in affected countries. While this could have major implications for the United States economy, our analysis suggests that even under the most adverse situations considered, total U.S. agricultural exports are likely to increase over time.

While the global financial crisis which started with the recession of 2008-09 did not cause the Eurozone problem, it did precipitate the crisis by focusing attention on the unsustainable current account imbalances associated with growth in government and private bank debt, and the shortfall in tax revenues in the EU deficit countries. The potential problem of having a European monetary union without political and financial integration of the member countries was pointed out by a number of authors (see Arestis and Sawyer, 2001, Feldstein, 1999, Feldstein, 2008, Holmes, 1997, and Kelch and Stallings, 1992). The Eurozone was formed despite these warnings. When the worldwide recession of 2008-09 occurred, it undermined government revenues, exposing countries with high debt payment burdens and reducing their short- to intermediate-term growth prospects. The Eurozone's sovereign debt problem emerged in 2010 first in Greece but was followed by problems in Ireland, Portugal, Spain (Münchau, 2010), and Italy. Once the magnitude of these problems became known, interest rates for government bonds increased for all euro-denominated debt, including German bonds. The EU policy response was to provide a fund for the problem

countries to guarantee debt repayments. However, as a condition for borrowing from that fund, major austerity programs were required for indebted countries to bring their government expenditures more closely in line with receipts. The longer term outcome of these policies is likely to reduce growth and investment in the indebted Eurozone countries for some years to come (Eichengreen, 2009; European Central Bank, 2010; International Monetary Fund, 2011; Jones, 2009; Reinhart and Rogoff, 2009; Rodrigues, 2010; Tumpel-Gugerell, 2010; and Wolf, 2008).

The major consequences of the current situation will be largely felt by the Eurozone countries themselves, who are forced to go through significant structural adjustments over the coming years. The adjustment process could generate a range of alternative macroeconomic outcomes among these countries—including differences in growth, real exchange rates and investment—which could have significant implications for U.S. agriculture and agricultural trade. U.S. exports are expected to remain robust across the full range of potential outcomes explored. Because the EU has represented an increasingly smaller share of U.S. agricultural exports, the direct impact of changes in European demand affects U.S. agricultural exports less than the secondary effects of changes in exchange rates and global investment patterns associated with alternative EU outcomes.

The Eurozone sovereign debt problem could undermine the euro's role as a reserve currency leading to a capital flight out of the Eurozone resulting in:

1. A depreciation of the euro relative to the dollar, which will have competitive impacts on U.S. and world agricultural trade;

2. An increase of capital flows into the United States, which will reduce interest rates in the country; and
3. An increase in capital flows by developing countries, which will help maintain their high growth rates, and thereby their high demand for U.S. agricultural products.

Our analysis suggests that continued strong income growth in developing countries will be more important for the future of U.S. exports than the increasing competition from EU exports. This is consistent with previous research by Shane et al. (2008), where the study showed that long-term growth in U.S. exports is driven by GDP growth in our export market countries.

Problems of a Single EU Currency

Once a set of countries adopts a single currency, individual members lose the ability to devalue their own currency as a means to increase trade competitiveness and overcome current account deficits. While changes in the exchange rate of the euro relative to other currencies would be expected, it will represent an average change reflecting the conditions in the currency union as a whole. Since a single country is only a small part of the currency union, conditions in that country will only marginally affect the currency's value, particularly if the country has a small Gross Domestic Product (GDP) relative to the aggregate. In the event of imbalances, policy options for countries with current account deficits entail adjustments in monetary policy to reduce inflation and fiscal policies that reduce government expenditures, income transfers, and increase tax collections. By inducing slower growth and less aggregate demand, these policies are expected to put downward pressure on prices of non-internationally traded goods and services and wages. These adjustments will increase the country's relative global competitiveness

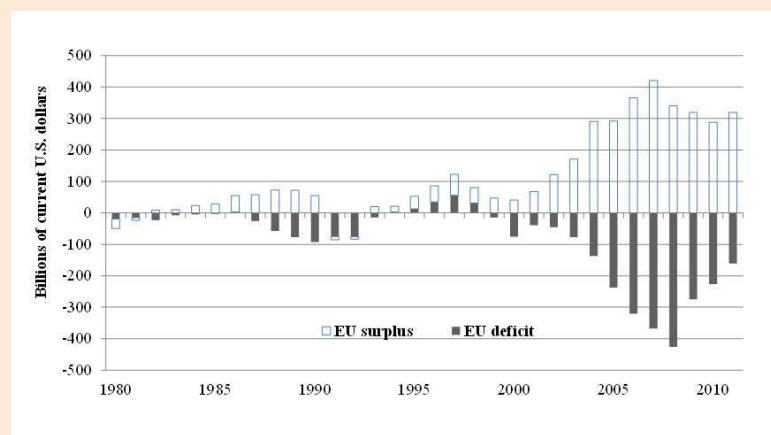
and, thus, reduce current account deficits. Negative GDP growth over a number of years can reduce import demand significantly and, therefore, also help correct current account deficits despite being very painful.

Divergent current accounts between countries in the Eurozone demonstrate the growing degree of disequilibrium within the zone before the crisis. Figure 1 aggregates current account surplus and deficit countries in the EU. The outstanding surplus countries are Germany, the Netherlands, and Sweden (an EU member but not in the Eurozone). The countries with the largest deficits are Spain, Italy, Greece, France, Portugal, and Ireland. The offsetting nature of European deficits and surpluses is evident from the figure. More indicative of why there was a crisis are the widening surpluses and deficits evident since the formation of the common currency in 1999. This suggests the fundamental policy discordance between the surplus and deficit Eurozone members, and that rebalancing current accounts in the deficit countries will likely entail rebalancing the current account of surplus countries as well. Resolution of

that policy discordance is a difficult and time-consuming process involving harmonizing macroeconomic policy in all Eurozone countries. Action taken so far by the EU through the European Central Bank (ECB) to create a fund for deficit countries will provide some time for rebalancing fiscal and trade accounts and for the EU to begin the process of creating an institutional structure for a unified EU financial system and resolve the underlying policy discordance. The difficulty of overcoming the imbalances in this manner and the potential for continuing imbalances will continue to provide the conditions for future crises. The Eurozone problem is now in its third year. The evolving pattern in Figure 1 suggests that the deficit countries have been reducing their current account deficits, an indication of at least some movement towards a positive resolution of the problem.

Although the Eurozone fixes the nominal exchange rate between countries, it does not fix the real exchange rate. Policies and factors which change the relative costs and prices, and thereby competitiveness, change the real exchange rate. However, the inability of countries within the zone

Figure 1: European Surplus Countries Offset Deficit Countries Current Account Imbalances



The surplus countries are Germany, Netherlands, and Sweden. The deficit countries are Spain, Italy, Greece, France, Portugal, and Ireland. Source: World Bank, World Development Indicators, 2013.

to adjust to changes in their real exchange rate from higher inflation or lower productivity growth by simply changing the nominal exchange rate leaves them with much less attractive options to correct trade imbalances. These unpalatable options include reducing costs, wages, and prices within specific industries, or macroeconomic retrenchment policies that reduce overall incomes and imports. One indication of the cause of the growing imbalances since the formation of the Eurozone has been the relative real appreciation of the euro evaluated

by the inflation in Greece relative to that of Germany (Figure 2). Before the Greeks adopted the euro in 2001, they maintained a relatively undervalued real currency compared with Germany. Between 1996 and 2000, there was relative parity in the value of the two currencies. Since 2000, there has been a widening divergence in the underlying real value of the two countries' currencies leading to the imbalance in their current accounts (USDA, ERS, 2013a).

What, then, would it take to forestall future government indebtedness

problems under a single currency system? Using the individual states in the United States as an example, the longer term solution to the Eurozone problem—if a single currency is to be maintained—is for members to unify their fiscal and monetary policies and reduce barriers to the free flow of factors of production—primarily labor—throughout the zone.

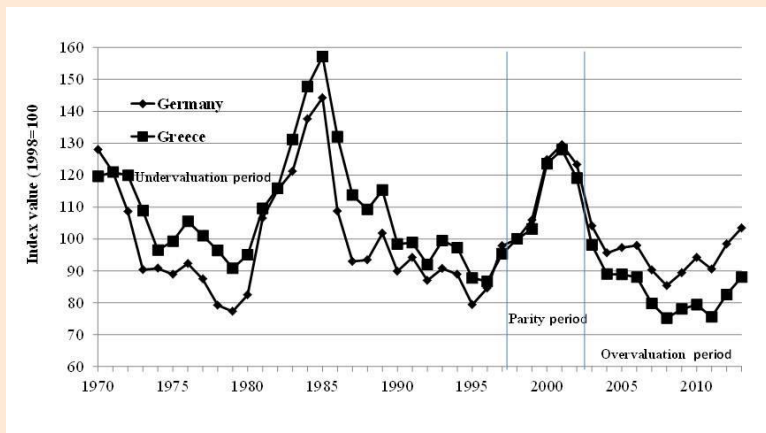
The Potential Effects of the Euro Problem on U.S. Agricultural Exports

The euro problem can have significant implications for U.S. agricultural exports since the macroeconomic conditions of countries around the world can be affected—directly or indirectly—by the Eurozone problem. The primary factors that affect U.S. agricultural exports are income growth outside the U.S. and changes in exchange rates. The global consequence of the Eurozone problem is driven by the changes in the euro relative to the U.S. dollar, EU gross domestic product (GDP) growth, and GDP growth of developing economies. Given the declining importance of the EU as a destination, the slowdown in EU growth and the depreciation of the euro relative to the dollar should have fairly modest impacts on the future growth in U.S. agricultural exports.

One feature of world growth since around 1980 has been the increasing importance of developing countries as major destinations for U.S. agricultural and merchandise exports (Figure 3).

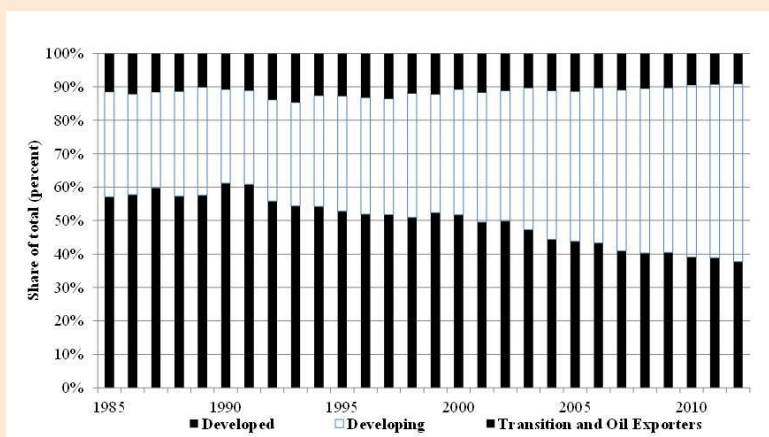
Developing countries have gone from being the destination for around 20% of U.S. exports in the late 1980's to around 40% by 2010. As a source for imports, their growing importance has even been greater. The United States imports almost 60% of its merchandise from developing countries compared with only around 20% in the late 1980s. The extremely high real economic growth in China and India, which has now spread to most of the developing

Figure 2: Greece's Real Exchange Rate Index Was Undervalued before the Introduction of the Euro and Overvalued Since 2001



Source: ERS Exchange Rate Data Set, 2013

Figure 3: Developing Countries Are Becoming Increasingly Important For U.S. Agricultural Exports



Source: FAS, Global Agricultural Trade System, 2013

world, suggests strong, new demand for imported goods in developing countries relative to developed countries (USDA, 2013b). Between 1985 and 2010, the compound growth rate for China and India was 9.28 and 6.16%, respectively, while the compound growth rate for all developing countries was 4.74%. This compares with a compound growth rate for developed countries over the same period of only 2.32%.

The importance of this growth in the present situation is that developing countries have been much

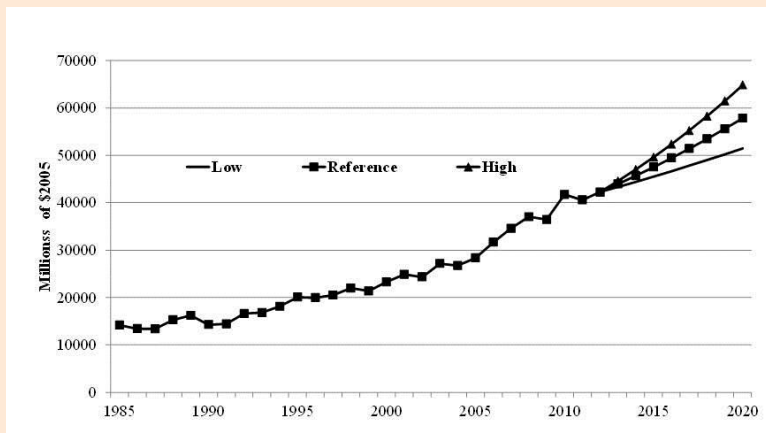
less affected by the 2008-09 world financial crises and the euro crisis than developed nations. One of the major implications of the differentials in growth before and after the 2008 financial crises is that world GDP has been and continues to be demonstrably shifting toward developing countries (USDA, 2013c). While it is likely that the EU's trading partners in Africa will be affected by the euro problem to some degree, the effects will be muted relative to countries in Europe and other developed economies. Growth prospects in all

developed countries have declined since the financial crisis. It is a characteristic of financial crises historically that affected countries take a long time to resume growth at full potential rates and this appears to be the case in the aftermath of the present crisis (Reinhart and Rogoff, 2009). The combination of the growing importance of developing countries and the fact that they have been much less impacted by the crisis implies that the share of developing countries as a destination for U.S. exports will get larger. It appears likely that developing country growth will more than compensate for the slower growth in EU imports and a more competitive, devalued euro.

In previous work (Kelch and Shane, 2011; Peters et al., 2009; and Shane et al., 2009), an analysis was conducted of the implications of alternative macroeconomic scenario assumptions using a composite of economic models to provide a range of plausible outcomes for U.S. agricultural trade and its components. The detailed results of that analysis go beyond the scope of this paper. However, the charts below show that, even under the most dire of Eurozone scenarios where the euro falls back to parity with the dollar and GDP growth in the Eurozone goes to zero for five years, U.S. agricultural exports continue to increase. Under the more likely middle scenario which seems to be emerging, U.S. agricultural exports continue to expand at a rather robust rate.

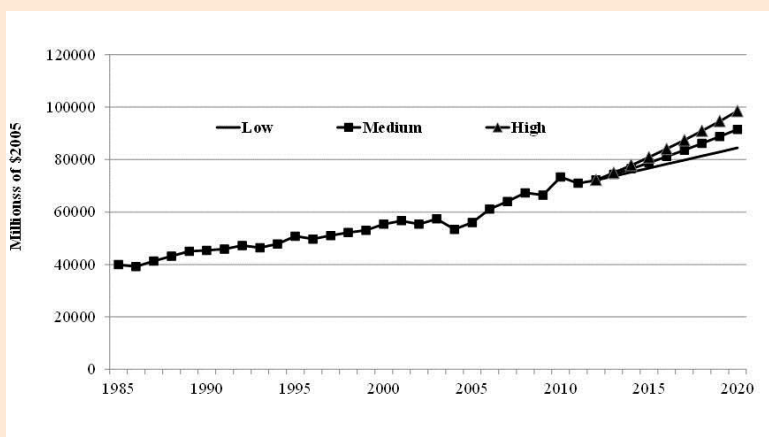
There is a big difference between the United States' growth experience with the developed countries and with the developing countries (Figure 4). While U.S. agricultural exports to the EU remain stagnant except for some modest growth in the high scenario, rapid growth in developing countries drives higher U.S. exports under all scenarios. Thus U.S. exports are likely to continue to increase, although by a substantially lower amount, under the

Figure 4: High Economic Growth of Developing Countries Drive Real U.S. Agricultural Exports



Source: ERS Data Set and scenario outcomes

Figure 5: Total Real U.S. Agricultural Exports Continue to Grow in Spite of Euro Problem



Source: ERS Data Set and scenario outcomes

euro crisis scenario with a devalued euro and stagnant net investment in the EU, the low scenario (Figure 5). The difference in U.S. real agricultural exports between the high and low outcomes is around \$18 billion 2005 dollars, or about 20%. The high, low, and medium scenarios represent alternative assumptions about the impact of the euro crisis on the value of exchange rates and economic growth in the Eurozone countries and derived impacts on other countries around the world. In the low scenario, we assume that the euro goes to parity with the dollar and economic growth in the Eurozone goes to zero for an extended period of time. In the high scenario, we assume that the euro is unaffected by the euro problem and continues as if the crisis never happened. In the middle scenario, we assume that there are both some exchange rate depreciations and slower growth in the Eurozone with derivative consequences to other countries exchange rates and growth.

U.S. Agricultural Exports Will Continue to Grow

This paper examines the consequences of the euro zone problem for U.S. agricultural exports. Yet the nature of this problem, while present since the beginning of the formation of the euro, only became a major issue in 2010.

Model-generated projections of the effects of the euro problem on the prospects for U.S. agricultural exports based on various scenarios and assumptions are presented. The results of the analysis shows that even under some rather strong assumptions about impacts of the euro problem, U.S. agricultural exports are likely to continue to increase based on growing demand in developing countries. Even substantial impacts to the exchange rates and GDP of EU countries are not likely in and of themselves to change the long term pattern of U.S. agricultural export

growth. The composition of global growth is increasingly focused on growth in developing countries, particularly in Asia. Developing countries have benefitted from high investment rates based on domestic savings, but also from substantial increases in foreign direct investment which has resulted in transfers of capital, technology, market capacity, and access. U.S. agricultural exports only increase modestly in the low scenario as indirect impacts of EU stagnations have global effects.

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Exposure of EU Farmers to the Financial Crisis

Martin Petrick and Mathias Kloss

JEL Classification: G01, Q14

Keywords: Agricultural Finance, European Union, Financial Crisis

Following recent headlines from crisis countries in the Eurozone, fears of a credit crunch in the Italian farming sector loom large, and Spanish food producers worry about crumbling domestic demand. Indeed, many European economies and the European Union (EU), as a political and economic project, are currently in deep trouble. But how severely are EU farmers really hurt by the recent crisis? How much are they exposed to the threats emanating from the epicenters of recent economic turmoil? This article attempts to collect the available evidence to answer some of these questions. The insights are tentative because there is a lack of up-to-date data, and consolidated information on EU agricultural finance markets is not readily available.

Evolution of the Crisis and Possible Impacts on EU Agriculture

Following years of an expansionary monetary policy of the Federal Reserve, the massive default of highly leveraged real estate loans marked the outbreak of the U.S. “subprime crisis” in spring 2007. As these loans had been distributed globally in the form of structured financial products, the bursting bubble hurt the portfolios of commercial banks and institutional investors worldwide and led to a massive loss of trust in the financial system. In waves, these financial institutions faced large losses and experienced difficulties in borrowing, epitomized by the collapse of Lehman Brothers in September 2008. As a response, central banks in the United States and Europe cut their lending rates, substantially increased the assets on their own balance sheets, and provided the banking sector with large amounts of liquidity. Governments stepped in to guarantee the solvency

of financial institutions and set up stimulus packages to counteract the looming economic recession. Government bailouts and nationalizations in almost all euro area countries as well as Denmark and the United Kingdom led to an explosion of sovereign debt. In December 2009, Greece declared significant problems in its debt exposure, followed by Ireland, Portugal, and Spain in 2010. By mid-2011, also Italy had witnessed rising spreads of its government bond yields over those of Germany, which are typically considered as a secure benchmark. Amidst economic recession and rising unemployment rates, the Greece, Ireland, Italy, Portugal and Spain (GIIPS) countries moved center stage in the genuine Eurozone crisis (German Council of Economic Experts, 2012). The Eurozone governments reacted by implementing multibillion euro stability facilities, including the European Financial Stability Facility (EFSF) and its follower organization, the European Stability Mechanism (ESM). In a highly controversial act, the European Central Bank (ECB) declared in August 2012 that it would buy unlimited amounts of government bonds.

As this snapshot illustrates, it is useful to speak of a *series* of crises which recently disrupted economic growth in the Western world. See Shambaugh (2012) for a discussion of the interlinked crises currently affecting the Eurozone, which include:

- (a) a banking crisis,
- (b) a growth and competitiveness crisis, and
- (c) a sovereign debt crisis.

What makes the situation so complex and difficult to resolve is that none of these crises can be dealt with in isolation. The massive bailout of banks by the public directly adds to

sovereign debt. On the other hand, banks holding government bonds in their balance sheets suffer when sovereign default is imminent. If banks no longer supply sufficient credit, economic growth will slow. But increasing bankruptcies in the real economy also strain the banking sector. Austerity on the side of governments, as a result of mounting public debt, likely reduces growth. Finally, lacking economic dynamism in the economy also means reduced tax incomes for the government to solve its debt problems. Of course, not all problems are similarly acute in all Eurozone countries; the imbalances among them in fact add to the complexity. For example, while poor fiscal policies were a main cause of the crisis in Greece, problems of the banking sector predominated in Ireland and a collapsed housing boom dragged down Spain (Shambaugh, 2012, p. 161). Germany and other northern Eurozone countries, on the other hand, displayed positive growth rates and record-low unemployment levels.

This anatomy of the crisis suggests at least three ways in how it can distress EU farmers:

- The banking crisis may cause a credit crunch for agricultural borrowers, by spoiling the functioning of rural financial markets.
- Economic recession and dwindling demand for income-elastic food products may lead to a reduction of farm incomes.
- Constraints on public budgets may lead to spending cuts in agricultural and rural policies.

In the following, we concentrate on the first, most immediate effect of the crisis. We come back to the second and third pathways in the latter part of the article.

Production and Banking Structure in EU Agriculture

A closer look at the institutional settings on European agricultural credit markets reveals a multifaceted picture. Table 1 displays information on

farming structures and main financial intermediaries for agriculture in selected EU member states. While highly simplifying, the table conveys an impression of the considerable heterogeneity across EU members. Denmark, France, Germany, and the UK tend to be characterized by relatively big commercial operations in agriculture. The GIIPS countries are dominated by smaller farms with comparatively low levels of investment and value creation. While some member countries have a long tradition of locally anchored savings and cooperative banks, state mandated agricultural sector banks or commercial banks prevail in others.

Farmers' exposure to the financial crisis also depends on their past lending behavior, their current indebtedness, and the extent to which their local financial intermediaries are themselves subject to the crisis' impacts. As the table shows, the countries most affected by the financial crisis may not be those with the most exposed farming sector. In particular, Greece, Ireland, Italy and Spain tend to be dominated by small farms exhibiting low investment levels in the past.

Farm Financial Indicators (2000-2009)

We now examine some of the financial indicators of EU farmers in further detail. Figure 1 displays the interest paid on agricultural loans, the debt-to-asset ratio of farms, farm debts per hectare (1 ha equals 2.4 acres), and net investment per ha for a sample of EU countries. We include the five GIIPS countries, Germany as a reference, as well as Denmark and the UK as non-euro members. Denmark is particularly interesting due to its developed agricultural banking system, whereas the UK's banking sector was itself subject to turbulence during the financial crisis. The figures are based on Farm Accountancy Data Network (FADN) data for the last 10 years of observation that are publicly

Table 1: Farm structures and agricultural finance in selected EU member states

Country	Farm structures	Degree of farm commercialization	Dominating agricultural banking institutions	Investment in farming assets
Denmark	Medium	High	Commercial banks	Traditionally high, recent decline
France	Medium	Medium	Centralised coops	Medium
Germany	Medium (West)	Medium (West)	Coops, savings banks	Medium
	Large (East)	High (East)		
Greece	Small	Low	Agricultural sector bank	Very low
Ireland	Small	Medium	Commercial banks	High before crisis
Italy	Small	Medium	Commercial banks	Very low
Poland	Small	Low	Coops	Low
Spain	Small to medium	Medium	Savings banks	Low
UK	Large	High	Commercial banks	Medium

Sources: Authors' compilation based on European Commission (2012) (farm size and standard gross margins); Jansson et al. (2013) (banking institutions); FADN data (investment activity), miscellaneous sources.

available. Unfortunately, there are no data for the very recent crisis years.

With regard to interest paid on agricultural loans, Greece stands out with the highest interest level and one with considerable fluctuation. This is despite the fact that the indicator is already an average of short- and long-term loans, which tends to level out the variation observed in newly concluded loan contracts. In all other countries, except Denmark and Portugal, farmers faced long-term declining interest rates until 2009.

In terms of indebtedness, farmers in Denmark lead the group by far. Not only did an average debt-to-asset ratio of 50% and more prevail over the recent decade, indebtedness per land owned more than doubled. While not a euro member, Denmark's financial system has the reputation of being quite liberal and Danish farmers being very entrepreneurial. This is reflected in these figures. Traditionally,

Denmark has a very large market for mortgage lending, to which farmers, up to the crisis, had easy access (Association of Danish Mortgage Banks, 2013). There is notable use of credit funding on British and German farms, but agricultural debt levels in all of the GIIPS countries were very low throughout the decade.

The chart on net investment confirms the leading role of Denmark. However, while there was still moderate growth in farm debt on Danish farms in 2009, investment almost collapsed that year. This is, very likely, a direct effect of the banking crisis in Denmark. In 2009, investment also went down in Ireland, one of the core crisis countries. Net investments in all other countries were close to zero throughout the observed period, which means that new investments just compensated for the depreciation of the existing capital stock. For Greece and Italy, the figures are significantly negative indicating that

farmers are effectively running down their capital stock.

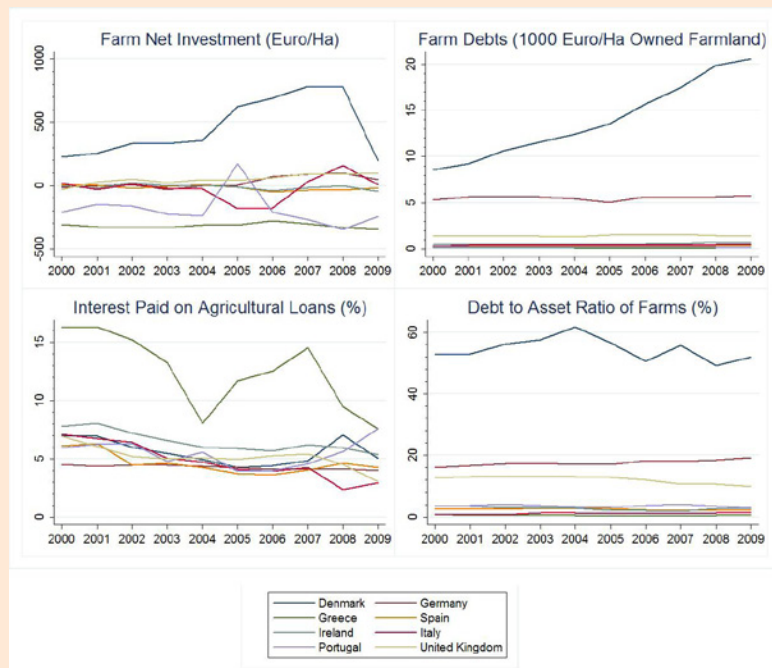
In sum, the picture that emerges from these indicators shows that farmers in all countries, except Denmark, exhibit very low debt levels. Those who did borrow benefitted from overall declining nominal interest levels. In 2009, impacts of the financial crisis were visible in the investment behavior of Danish and Irish farmers.

Lending Rates in Agriculture and the General Economy

Next, we attempt to evaluate whether farmers pay higher interest rates than other business entities or whether they obtain less credit than they demand. We start with the former by comparing interest rates paid in agriculture with the rest of the economy. The right chart shows the difference between the interest rates paid in agriculture (Figure 1) and the former, or what may be called an "agri-premium." Note that the two are not fully comparable, as the first only includes new business while the second is an average of all outstanding loans weighted by outstanding loan size. Thus it reacts with delay to changing market conditions. The left chart of Figure 2 shows the average interest rates of new loan contracts arranged between banks and non-financial corporations (i.e., firms) in selected EU countries

One interpretation of the left chart is that lending rates grew with the increasing stress on financial markets in the mid-2000s, but then fell with significantly loosened monetary policies after September 2008. Spreads among countries reflect specific risk premiums and the institutional conditions on domestic financial markets. Greek and Portuguese banks stand out here for charging above-average loan rates. Denmark and Spain did not completely follow the interest drop in 2009 and thus reshuffled the order, but otherwise the lines mostly move in parallel.

Figure 1: Financial Indicators of Farms for Selected Countries



Note: Interest paid is ratio of annual interest payments to all outstanding loans. Net investment is investment outlays minus depreciation.
Source: FADN data.

If new contracts in agriculture closely followed the interest level in the general economy, the agri-premium should be slightly positive in years of falling overall interest levels and slightly negative in times of rising rates, due to the sluggish agricultural interest indicator. In our sample, this appears to be the case for most of the countries in 2006-8 (rising overall rates) and 2009 (falling rates), respectively. So, in fact, there seems to be no significant agri-premium for new loan contracts. Only Greece displays an excessively high interest rate level

in agriculture. Portuguese farmers, on the other hand, tend to pay even lower rates than firms do in the rest of the economy.

Estimated Return on the Last Euro Invested in Farming

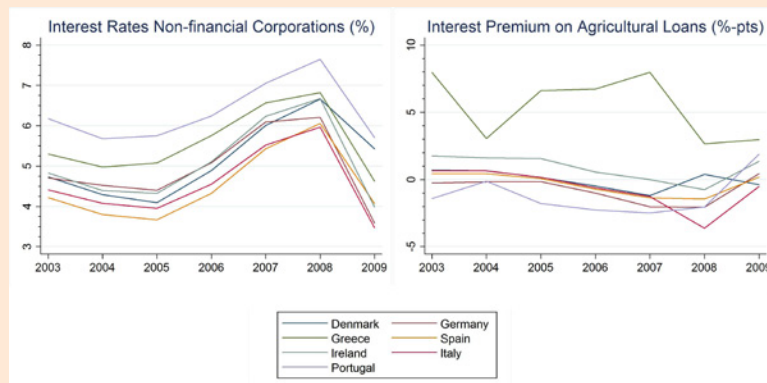
If there are constraints on credit supply induced by the crisis, farmers cannot realize profitable capital investments in their farm. In such cases, the return earned on the last euro actually invested in farming is likely to remain much above typical interest rates on credit markets. As detailed in

Petrick and Kloss (2012; 2013), we calculated this marginal value of farm capital as a measure of the existing credit constraints for every farm in our sample. Figure 3 shows the distribution of internal returns on the last euro of working capital spent on field crop farms in Italy and Spain. Both countries reveal a similar picture. The median values suggest that the highest level of return on working capital were reached in 2007 and 2008 just after the onset of the financial crisis. In these years, the level was at 20% and above, and thus notably higher than the interest rates paid on loans (Figure 1). However, the dispersion of the farm-individual returns is considerable and tends to increase, at least for Italy. The evidence points to a moderate level of credit rationing towards the end of the period, when the crisis set in. As shown in the chart, after a peak in 2007, the median value went down again slightly in 2008. The charts also suggest that individual farms were affected quite heterogeneously.

Results for other EU member states reported in Petrick and Kloss (2013) show that marginal returns on working capital are much lower in some countries such as Denmark or Germany. They also suggest that the marginal return on fixed capital is substantially below the return on working capital in all countries; in fact, it is typically negative. In a long-run perspective, this is a sign of over-capitalization in agriculture and not of credit rationing.

It would be useful to complement these figures by more direct evidence on credit constraints based on farm surveys. While the ECB does collect data on the access to finance by small- and medium-sized enterprises (SMEs), the agricultural sector is excluded from these surveys.

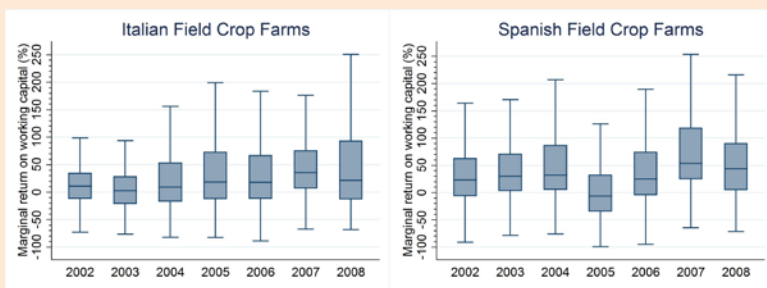
Figure 2: Current Interest Rates and the Agri-premium for Selected Countries



Notes: Left chart: Interest rates for loans up to 1 million euro to non-financial corporations in the entire economy (new business other than revolving loans and overdrafts, convenience and extended credit card debt; annual averages). Right chart: Interest paid on agricultural loans minus interest rates non-financial corporations.

Source: Authors' calculations based on ECB and FADN data.

Figure 3: Marginal Return on Working Capital on Italian and Spanish Farms



Notes: Line dividing the box is the median, lower and upper limits of the box delimit first and fourth quarter of the distribution. Lower and upper whiskers delimit most extreme data points. N=5053 (7917) for Italy (Spain).

Source: Authors' estimates based on FADN data.

Crisis Effects on Commodity Markets and Policy Responses

As noted before, two other possible pathways of crisis impacts on EU agriculture include a decline in food demand and spending cuts in agricultural policy. During recessions, easy-to-substitute products are consumed less. In 2009, there were drops in the import of fruits and vegetables in some countries of Eastern Europe (particularly Russia) and the Near East because of the crisis (Schockemöhle and Würtenberger, 2010). European exporters suffered from them. More recently, while there were reports about temporary shocks in the demand for alcoholic beverages, sweets, and premium goods like duck meat, the European food industry seemed to have weathered the crisis relatively well.

In 2009, an immediate effect of the crisis played out in the European milk market. The year 2007 had seen a price surge in world dairy markets, partly due to exceptional weather events and a small supply from producers in Australia and New Zealand. The unfolding world financial crisis then led to a drastic decline in the demand for dairy products (USDA-FAS, 2008). As a result, dairy prices plummeted below pre-2007 levels and triggered what was perceived to be the EU dairy crisis in 2009. A crucial and widely discussed problem was that dairy prices failed to fully adjust at the consumer level. Margins for dairy processors and retailers increased, while consumer demand did not rise enough to buffer the price drop at the farm level.

These volatile and ultimately adverse price movements on the dairy market provoked protests and complaints from dairy farmers and interest groups. They induced policy makers to respond with a multimillion euro rescue package for EU milk producers. Some of this money was taken from direct payments which

were one out of two pillars of the Common Agricultural Policy (CAP). Another share was available from the European Economic Recovery Plan (EERP), a stimulus package set up to mitigate the consequences of the global financial crisis in the EU. The co-financing requirement for these measures was lowered to 10% in the most economically disadvantaged regions of the EU (European Commission, 2010). Implementation of the support differed by member country, which typically funded extra premiums for dairy farmers and concessionary credit access. Ultimately, the dairy crisis also led the European Commission to promote a restructuring of dairy markets, including new regulations on contracting between farmers and processors (European Commission, 2013).

In retrospect, rescue measures at the EU level provided a significant safety net for farmers affected by the crisis. National co-financing requirements were substantially lowered to accommodate the difficult budgetary situation in some of the member states.

Most EU Farmers Little Exposed, Many Well Protected

The evidence presented here suggests that some but definitely not the majority of EU farmers faced difficulties in credit access after the outbreak of the financial crisis. Low debt levels and declining interest rates insulated most farms in the crisis regions from excessive risk exposure. In Denmark, highly leveraged farm operations in the past led to perceivable credit constraints in agriculture. Increasing returns on farms' internal uses of working capital in Italy and Spain were consistent with tightening credit constraints. Most farms in the other GIIPS countries used so little external funding that worsening credit terms due to the financial crisis were unlikely to be a major obstacle for their business.

The limited financial exposure of farmers in the crisis countries was a consequence of little borrowing in agriculture. This raises the question: to what extent is agricultural banking subject to deeper structural problems? For example, agricultural interest rates in Greece fluctuated much more than in other countries, and farmers paid much higher rates than businesses in other sectors of the economy. Both are signs of a lack of financial market integration with agriculture. On the other hand, net investment levels in agricultural assets have been consistently negative for years. What helped during the current banking crisis may turn out to be a bottleneck for future development of the sector. Institutional weaknesses in banking may slow down structural change and inhibit further modernization. Future institutional reforms thus should not bypass the agricultural banking sector.

The recent financial crisis coincided with increasing volatility in many commodity markets, some of them induced by demand drops because of the crisis. Even so, agricultural policy measures at the EU level provided farmers with a reliable stream of transfer payments. Following up on collapsing milk prices in 2009, the European Commission even set up a specific rescue program for dairy farmers. In all likelihood, this extraordinary level of public support for the agricultural sector will also be available in the near future, thus continuing to shield farmers from the most severe crisis impacts.

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Implications of the Eurozone Crisis for Agriculture in the Europe and Central Asia Economies in Transition

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JEL Classification: F1, F2, G2, Q1

Keywords: Capital flows, Credit growth, Europe and Central Asia, Eurozone crisis, Remittances, Trade

When compared with the European Union (EU), many of the Europe and Central Asia Economies in Transition (ECAEiT) countries have seen both a larger economic decline and a stronger economic recovery after the global economic crisis that started with the 2008-09 recession. However, many of the ECAEiT are increasingly linked by goods, services, capital, and even labor markets to the economic performance of the EU, so the sustainability of their recovery is influenced by the Eurozone and broader EU economic performances, which has been also confirmed by a number of recent studies. As an example, the headline on the European Bank for Reconstruction and Development's (EBRD) Regional Economic Prospects report for January 2012 was "Eurozone Crisis Takes the Steam out of Emerging Europe's Recovery." The headline in the HSBC Bank's October 2012 report on macroeconomics of the Central and Eastern Europe and Sub-Saharan Africa (CEEMEA) region declared that "weak demand from the Eurozone is dragging down exports while deleveraging pressures are weight on domestic lending."

It is still too soon to conduct more detailed quantitative analysis to establish cause and effect of the EU crisis on the ECAEiT countries, so we rely heavily on assessments that EBRD and others have already conducted on the Eurozone crisis as it has unfolded, as well on the larger financial crisis of 2008-09. The degree of market integration with the Eurozone, and thus impacts of its crisis, varies greatly across this region since some countries are already in the EU, some are candidates for accession, many have preferential trade agreements, and some are far less linked to the Eurozone economy. An extreme example may be Uzbekistan,

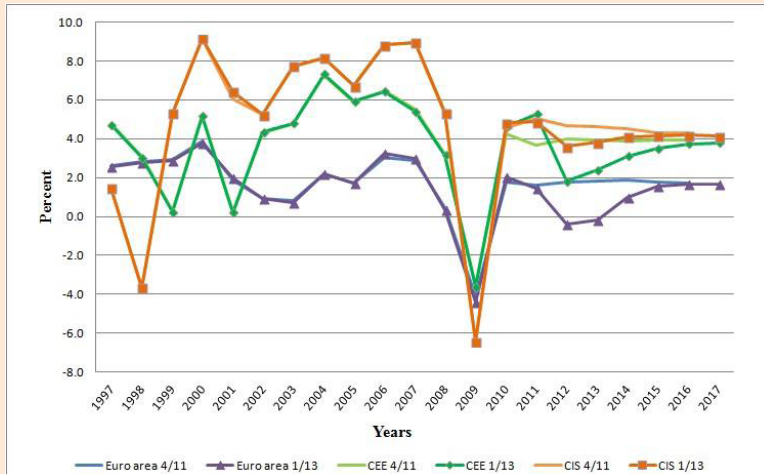
which resists globalization and shows very few effects of either positive or negative global economic shocks.

The opening article in this series on the Eurozone provides the background on the focus of this and other contributions to the topic. We will explore the main transmission mechanisms through which Eurozone financial troubles have disrupted or could disrupt economic recovery and agricultural growth in the ECAEiT. The usual transmission mechanisms likely to be relevant are trade, investment, credit flow, and remittances. So these will be explored in terms of their impact on ECAEiT economies, and on their agricultural growth, whether directly or indirectly. For most of these factors, the double-dip recession in many countries of the EU and the persistence of financial instability in the Eurozone has negative consequences for economic performance in the ECAEiT. A more severe shock, such as the collapse of the euro or even the exit of one or more countries from the Eurozone, would have even more stark, contagion effects on the analyzed countries, and the magnitude of these impacts would clearly be greater for those countries closer in geography and in economic integration with the EU. The 2013 outlook for the euro area was revised downward by the International Monetary Fund (IMF) (2013) and the uncertainty about its future continues to create large downside risk, especially for neighboring regions. This assessment will conclude with risk factors and issues of concern for the ECAEiT

Overview of Economic Recovery

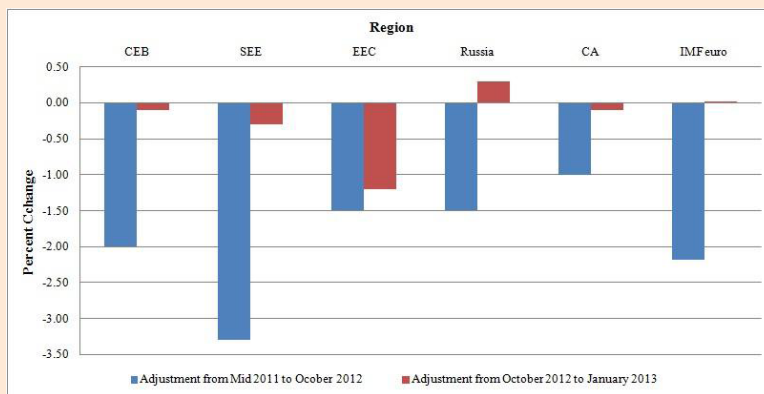
Data clearly shows that the recovery from the 2009 financial crisis was stronger in Central and Eastern Europe

Figure 1: Annual Growth Rate of Real GDP, Comparison of January 2013 and April 2011 IMF Projections



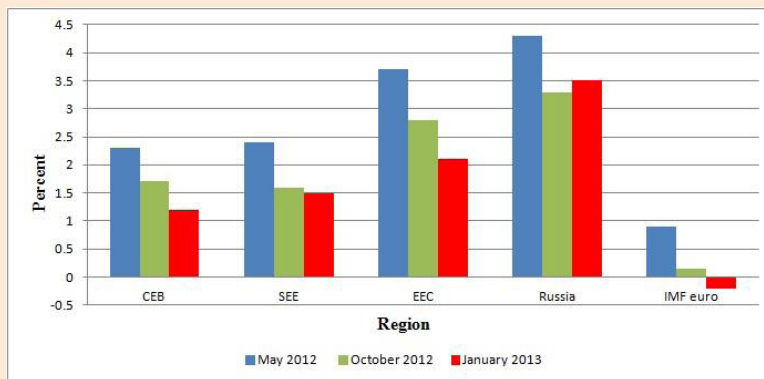
Source: IMF macro outlook forecasts (IMF 2011, 2013)

Figure 2: Changes in Projected 2012 GDP Growth by Region



Source: EBRD (2011, 2012c, 2013), IMF (2011, 2012b, 2013)

Figure 3: Projections of 2013 GDP Growth by Region



Source: EBRD (2012b, 2012c, 2013), IMF (2012a, 2012b, 2013)

(CEE) and in the Commonwealth of Independent States (CIS) than in the EU or Eurozone areas, which always lagged slightly behind the total EU average (Figure 1). But when the Eurozone went into a double-dip recession in 2012, which likely continued into 2013, it clearly slowed the recovery in neighboring regions. Generally, the geographically closer and more economically integrated CEE is more affected by this recession than was the CIS.

It is helpful to see the disaggregated analysis of the EBRD, which shows the sub-regions are affected differently. Its analysis of GDP growth in 2012, done at different points in time, found that South-Eastern Europe (SEE) and Eastern Europe and the Caucasus (EEC) economies are influenced by the second Eurozone recession more than Russia and Central Europe and the Baltics (CEB) (Figure 2). EBRD found that impacts on the Central Asia (CA) region were relatively small. A similar pattern seems to be emerging for 2013, though the relative size of the impacts of reduced economic activity in the disaggregated regions is expected to be smaller than in 2012 (Figure 3).

In both years the economic performance of the other regions is significantly better than that of the Eurozone. In fact, three of the countries in CEB are actually in the euro area, but two of them—Estonia and Slovakia—are growing well above the regional average and one—Slovenia—has even been below the Eurozone average growth rate both years.

This comparison may only show the difficulty of doing economic projections and by itself does not prove causality; but given the sequence of economic events and size of the Eurozone economy relative to others, even including Russia, the case for such significant influence on other economies in the region is strong.

Exploring the Main Transmission Mechanisms

To the extent that neighboring countries in SEE, EEC, Russia, and CA have become more integrated with the Eurozone economy, the impacts of economic and financial developments in the euro area naturally have a greater significance. An assessment of exposure of these economies to the Eurozone via foreign direct investment (FDI), external debt, and exports found, for example, that Ukraine, Kazakhstan, and Russia had a higher exposure than one or more of the EU member states in CEB (EBRD, 2012d). If we consider the main pathways through which the Eurozone economic crisis can affect neighboring regions, the principal linkages are trade, investment, credit flow, and remittances. We explore each of these and consider how they may alter the agriculture sectors in the region.

Trade

One early impact of the euro crisis was its depreciation. In this instance, that was offset by the fact that currencies in the neighboring regions, in general, depreciated relative to the Euro. The main trade impact, therefore, would be through the decline in demand in the Eurozone, which would translate into declining exports from these regions. There are neighboring countries, including all those in SEE, where the share of exports to the Eurozone during 2007-10 was 40% or more, and exceeded even some of the countries inside the EU. In fact, an analysis by the EBRD (2012d) found that from September 2011 to July 2012, when a major economic decline in the Eurozone took place, exports from SEE countries declined from 0.5% to 3.0%, and some countries in the EEC and CA regions were also affected. Of course other factors can be at play here, but there is at least a pattern of greater export declines in countries that had a larger share of exports to the Eurozone in the 2007-10 period.

Capital Flow

As with the financial crisis of 2008-09, capital inflow was also reversed as a consequence of the Eurozone crisis. According to EBRD, capital flow turned negative in the second half of 2011 and FDI dropped by about 50% in the SEE and EEC regions. These coincided with a drop in outward investment from the Eurozone (EBRD, 2012d). Once again, this correlation does not prove cause and effect, but a statistical analysis was conducted on this question with data on bilateral flows from six Eurozone countries to countries in the transition region from 2001 to 2010. The results showed that an increase in the source country's growth rate by 1.0 percentage point increases its stock of FDI in the receiving country by 5.9% (EBRD, 2012d).

Credit growth

The third quarter of 2011 saw large outflows of funds from transition countries as banks reduced lending in response to the financial crisis in the bank's home country. The early credit contraction was most severe in CEB countries that are part of the EU. However, the most persistent credit contraction has been in the SEE region where credit growth remains close to zero (EBRD, 2012d). This was even more severe in the 2008-09 financial crisis, but the lending activity began to increase before the onset of the 2011 Eurozone crisis, then decreased again. It is likely more severe in countries with a large share of foreign-owned banks, and for most countries in CEB and SEE, foreign-owned banks have well over half of all bank assets and over 90% in some cases (HSBC, 2011).

Remittances

The impacts of remittances are much more selective than other effects. For example, the decline in remittances is largely affecting SEE countries, especially Serbia, Albania, Kosovo,

and Romania where they declined by double-digits in 2012 (World Bank, 2012). Albania and Moldova, in particular, are heavily dependent on remittances from two of the most troubled EU countries—Greece and Italy. The other possible remittance effect would be indirect, as in the case where Russia's economy is negatively affected and, in turn, there is a decline in remittances from Russia to other countries in the region. That does not seem to be likely except in the case of a contagion effect from a much larger Eurozone crisis. At the present time the growth in remittances from Russia are offsetting the weak remittances from Western Europe (World Bank, 2012).

Implications for Agriculture in the Region

The potential impacts on agriculture can be viewed in terms of effects on supply and demand, and we should consider both positive and negative effects. First of all, it is important to recognize that there is a huge diversity of farm sizes, ownership structures, and degrees of commercialization in these neighboring regions, ranging from subsistence farms to the large-scale, commercial agriholdings in Russia and Ukraine. In part, the current farming structures are a consequence of the methods and speed of transformation and, in part, due to differences in the pre-reform structures and heritage of different countries (Goychuk and Meyers, 2013). The one common feature is that all of them have undergone a massive transition from the forms under which they operated prior to 1989 and the current farming structures and management systems. Thus, generalizations are difficult to make. But the main focus of our comments relate to those farming systems that are commercialized and engaged in the supply and demand marketing chain.

It is important to note that in many countries of this region,

especially those not in the EU, agriculture is still a significant share of their economies, ranging from 10% in Ukraine to 34% of GDP in Serbia. As has been emphasized by Petrick and Kloss (2013), the banking crisis, recession, and sovereign debt crisis associated with the Eurozone troubles have different effects depending on the farm structures and degree of commercialization. They already touched on those countries from this region that are already in the EU, so we will tend to focus more on those that are not EU members.

As with the 2008-09 financial crisis, the most direct impacts on agriculture would most likely be reduced credit access, reduced FDI, and reduced market demand (World Bank, 2009). Of course, the size of these effects would have been proportionately bigger during that global financial crisis. In some respects, the current effects are essentially a prolonging of the impacts of the earlier and larger financial crisis. A good example is the reversing of credit flow due to reduction of lending that was very severe after the 2008-09 financial crises. In many countries in these regions it was the EU-based banks that were more engaged in agricultural credit, so their withdrawal contributed to a sharp rise in interest rates and constrained credit access. The July 2011 analysis found hope in the positive capital flow into the region (EBRD, 2011), but this reversed again as the Eurozone went into its second dip.

With regard to FDI, this has been significant in the growth of large-scale farming enterprises that have been especially successful in expanding agricultural production and increasing exports from Russia and Ukraine (Liefert, Liefert, and Luebehusen, 2013). When FDI slows, therefore, it slows these investments and production growth. One could perhaps argue that investors could leave poor performing economies in the Eurozone to invest elsewhere and this may

be advantageous to the neighboring regions. However, EBRD (2012d) found that “FDI flows into these countries over the previous decade had been affected by economic conditions in the *source country* rather than by prevailing or past growth rates in the recipient state.”

On the demand side, exports to the EU from neighboring regions have clearly declined since the onset of the Eurozone crisis, and these are most likely transmitted via reduced demand rather than via exchange rates and apply to agricultural exports as well as to total exports. It is too early in the process to measure or compare the magnitude of different effects, but larger declines may be seen for products more sensitive to income, such as high-value fruit and vegetable exports from the SEE region, for example, than for bulk grain exports from the EED region. The largest demand effects in many countries, however, would be the decline in their internal demand due to slower domestic GDP growth. Finally, budget constraints are leading to a first-ever reduction in funding for agricultural supports in the EU. In addition to cuts in the Common Agricultural Policy (CAP) budget, proposed capping of payments and increased production costs associated with greening constraints would both have the effect of reducing production incentives in the EU. This may give advantage to neighboring countries that have far lower levels of support for agriculture. However, these countries also face more budget austerity, so their support for agriculture may also suffer.

More Analysis Needed

It is still premature to carefully measure causality with any degree of confidence. Regardless, the patterns of change observed during the second Eurozone recession suggest that neighboring regions are, indeed, negatively affected and remain vulnerable to Eurozone economic

shocks through the normal economic mechanisms. These impacts are much smaller than those of the bigger and broader 2008-09 financial crisis, but clearly have significantly slowed what was a robust recovery from the 2009 recession and have greater effects on those regions that are more closely integrated with Eurozone economies. It is even more difficult to quantify the impacts on agriculture specifically, but capital flow to investment and credit could be more significant than demand effects—except in those countries that have a large share of high-value exports going into EU markets. Finally, it must be said that the crisis is not over, and the January assessment by EBRD concluded that the largest downside risk to this region is a further deterioration of the Eurozone crisis.

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