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European Financial Imbalances: Implications of the Eurozone Sovereign Debt Problem for U.S. Agricultural Exports

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Abstract

The European sovereign debt problem became the focus of world attention in 2010 when the interest rates on Greek government bonds rose dramatically, requiring immediate action by the European Union to avoid an imminent default. It soon became clear that the problem was not limited to Greece when government bond interest rates on other Eurozone countries began to increase as well due to excessive accumulation of debt. The financial markets' reluctance to fund continued borrowing by the EU debtor countries forced EU governments to come to grips with fundamental imbalances and underlying inconsistencies in the Eurozone economic system of using a single currency for a set of countries that lack a unified economic and political system. The major consequences will be largely felt by the Eurozone countries themselves, who will be forced to go through some significant structural adjustments over the next few years. The adjustment process could generate a range of alternative macroeconomic outcomes—including differences in growth, exchange rates and investment—which could have significant implications for U.S. agriculture and agricultural trade. This paper attempts to allay some of that uncertainty by exploring a wide range of alternative macroeconomic outcomes and their potential impact on U.S. agricultural exports. While U.S. exports vary, they 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.

Contents

Introduction.....	3
The Scenarios Defined.....	5
Problems of a Single EU Currency.....	8
Scenario Outcomes Compared.....	11
The Potential Effects of the Euro Problem on Agricultural Trade.....	13
Conclusions.....	16
References.....	17

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Introduction

The Eurozone sovereign debt problem could have major implications for U.S. agriculture.¹ But even under the most adverse of the scenarios considered in this report, total U.S. agricultural exports are projected to increase over time. While the loss of confidence in the euro as a reserve currency would result in a weaker euro relative to the dollar, the direct results are modest since the EU has become a much less significant destination for U.S. agricultural exports. However, because the problems in the EU will encourage the flow of investment capital away from the EU to emerging market economies, the even more rapid economic growth in emerging-market nations will result in increasing demand for food and agricultural commodities in those countries. This will be the driving force for U.S. agricultural exports over the intermediate to longer term. While there are many actions that the EU can take to quiet financial markets in the short term to intermediate term, the structural changes that are required to solve individual government budget and current account deficits will take years to implement. A Eurozone country's commitment to the euro takes away the traditional financial option of devaluing a national currency to turn around a current account deficit.

While the global financial crisis 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 countries operating at a deficit. The worldwide recession 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, and Spain. Once the magnitude of these problems became known, interest rates for government bonds went up 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 time to come.

The Eurozone sovereign debt problem could affect the U.S. in three ways:

- it undermines the euro's role as a reserve currency leading to a flight out of the euro and into the dollar, which would reduce long-term interest rates over the projection period in the United States from what they were assumed to be in the Economic Research Service's late 2009 international macroeconomic data set (USDA/ERS, 2010b)
- increased investment in emerging economies raises their income growth, driving increases in demand for U.S. agricultural exports

¹The Eurozone consists of the 17 member states of the European Union that use the euro as their currency—Belgium, Ireland, France, Luxembourg, Austria, Slovakia, Germany, Greece, Italy, Malta, Portugal, Finland, Estonia, Spain, Cyprus, the Netherlands, and Slovenia. Countries that are EU members but do not use the euro currency are Bulgaria, the Czech Republic, Denmark, Latvia, Lithuania, Hungary, Poland, Romania, Sweden, and the United Kingdom.

- a depreciation of the euro relative to the U.S. dollar makes Eurozone exports cheaper in global markets, increasing competitive pressure on U.S. exports

On balance, our analysis suggests that the longer term implications of income growth in emerging market countries will be more important for the future of U.S. agricultural exports than the increasing competition from EU agricultural exports.²

²In Shane et al. (2008), we show that long-term growth in U.S. agricultural exports is driven by GDP growth in our export market countries. The appreciation of the dollar caused by adverse movements of exchange rates in primary U.S. export destinations has been, at most, a temporary constraint to the longer term pattern of export growth to export market countries.

The Scenarios Defined

The broad implications of the 2010 sovereign debt problem in the Eurozone and its effects on U.S. agricultural trade are the focus of this analysis. Three alternative macroeconomic scenarios will be explored and the consequences of those scenarios for U.S. agriculture will be presented. The U.S. agricultural sector is largely driven by macroeconomic outcomes in the United States and in our major markets around the world, assuming no changes in agricultural policies and normal weather conditions (Liefert, 2000; Gehlhar et al., 2007; Schuh, 1974). To assess the likely outcomes of the Eurozone problem, we develop two dramatically different scenarios around a reference scenario—the “high euro scenario,” in which the euro does not weaken and continues to appreciate into the future and the “low euro scenario,” in which the euro depreciates sharply back to parity with the dollar. The reference scenario assumes that the Eurozone problem will lead to some depreciation of the euro relative to the dollar and some weakening of growth prospects in the EU. We consider this scenario to be the most likely outcome.

The high euro scenario assumes that there is no adjustment to the Eurozone current account and fiscal imbalances and was drawn from projections made before there was any perception of the Eurozone problem. The low euro scenario assumes that the euro depreciates back to parity with the dollar, interest rates rise sharply for Eurozone debt, and net investment in the Eurozone countries is stagnant, leading to low GDP growth among member countries.³ Using the Oxford Economic Forecasting model, the implications of the alternative Eurozone assumptions on exchange rates, interest rates, and investment, result in changes in exchange rates and gross domestic product (GDP) growth rates in other major trading countries around the world. We assess what the potential outcome might be for U.S. agricultural exports in the alternative scenarios by taking country-by-country real GDP and real exchange rate outcomes of the alternative runs in the Oxford Economic Model, and use these as inputs (macroeconomic exogenous drivers) in the PEATsim model. The PEATsim model is used to determine the differences in U.S. agricultural exports from the alternative macroeconomic scenarios. Implicit in these projected outcomes are assumptions of macroeconomic policy responses of both the U.S. and foreign governments between 2010 and 2019. We use actual 2008 USDA Foreign Agricultural Trade of the United States (FATUS) data exports as our “point in history” basis (see <http://www.ers.usda.gov/Data/FATUS>). Given the large degree of uncertainty with regard to the long-term euro/U.S. dollar relationship, the high and low scenarios represent what we feel are the range of feasible outcomes for future investment, GDP growth, and trade for both the United States and other major countries around the world.

Exchange rate adjustments are a major policy vehicle to overcome current account imbalances. A depreciation of the euro relative to the dollar and other currencies in real terms helps Greece and other affected EU countries by lowering the real price of their exports and raising real import prices. Long-term euro depreciation relative to the U.S. dollar is likely to lead to third countries depreciating their currencies relative to the dollar, but to a smaller degree than the euro depreciation. The most direct and significant implication of a euro depreciation for U.S. agriculture is the increased competition

³Since the focus of this report is on the implications of the Eurozone problem, we assume that U.S. policy environment remains the same under the three scenarios. This does not imply that the macroeconomic outcomes in the United States in the three scenarios are the same. The Oxford Model has international linkages so that changes in the EU do result in changes in the U.S. long-term outlook. By April 2011, there was no evidence that U.S. policy has changed in response to the problems in the Eurozone. The base macroeconomic scenario does include some increase in inflation and a rise in interest rates. If macroeconomic conditions change with a dramatic increase in inflation or a setback in economic growth and employment, then macroeconomic policy in the United States is likely to be different from what is assumed in this report and the outcome for the United States and other countries around the world would differ.

Oxford Global Macroeconomic Model

The Oxford Economic Forecasting (OEF) Global Macroeconomic Model is a quarterly dynamic international econometric model. It covers 76 countries, with primary models for 44 countries and secondary models for 32 others. Data are imbedded in the model for a wide variety of macroeconomic variables going back to 1970, and the model generates projections out to 10 years in the future. The model is updated every month and a new base projection is run. For major countries such as the United States, the underlying database contains about 450 variables. For secondary countries, the variable coverage is smaller. The model is designed to be user friendly.

The Oxford model is used to generate the projected values of countries' gross domestic product (GDP), exchange rates, inflation rates (as measured by the consumer price index), GDP deflator, the world price of oil, and interest rates. These are then used to calculate real GDP and real exchange rates, which are entered into USDA's PEATSim model. The various macroeconomic scenarios are produced by changing a key variable, computing a new solution, and comparing the new results with those of the base run (the reference scenario). Charting and tabling tools are available to evaluate the scenarios.

The macroeconomic assumptions used in all three projection scenarios (including the reference scenario) differ from those that underpin the USDA agricultural projections to 2018, which means that the projections made in this report for U.S. agricultural exports, prices, and other market effects also differ from those in the USDA agricultural projections to 2018. The macroeconomic assumptions for the USDA baseline were made in October 2009, while the assumptions for this report were made in January 2009, when the empirical evidence indicated that the world economic problem would be more severe than was thought in mid-autumn 2009.

ERS PEATsim Model

The Partial Equilibrium Agricultural Trade Simulation model (PEATsim) is an annual projection, partial-equilibrium, multicommodity, multiregion global gross-trade model of the agriculture sector. The model produces 10 years of projections, which in this paper are 2010-19. The model uses supply and demand equations to capture the economic behavior of producers and consumers in a global market, and includes variables for production, acreage, yields, consumption, exports, imports, stocks, world prices, and domestic producer prices. The model calibrates each country's agricultural activities to USDA's long-term projections (USDA, 2010). The model balances global supply and demand. Prices are determined at levels that achieve global market equilibrium. Simulations in this paper take exogenous changes in real GDP and real exchange rates generated by the macroeconomic scenarios in the Oxford Economic Forecasting Model to create alternative paths for trade in agricultural commodities.

PEATsim covers 37 agricultural commodities:

- 12 crops—rice, wheat, corn, other coarse grains, soybeans, sunflowers, rapeseed, peanuts, cotton, other oilseeds, tropical oils, and sugar
- 12 vegetable, oil, and meal products from soybeans, sunflower seed, rapeseed, cottonseed, peanuts, and other oilseeds
- 4 livestock products—beef and veal, pork, poultry, and raw milk
- 6 dairy products—fluid milk, butter, cheese, nonfat dry milk, whole dry milk, and other dairy products
- 3 biofuel commodities and byproducts—ethanol, biodiesel, and dried distillers' grains

PEATsim includes 13 countries or regions—the United States, the European Union, Canada, Mexico, Japan, South Korea, Australia, New Zealand, China, Brazil, Argentina, India, and the rest of the world (ROW).

PEATsim can model country-specific trade and domestic policies. The model's innovative and flexible specification enables it to analyze a variety of scenarios. Model solutions provide information on changes in prices, consumption, production, imports, and exports.

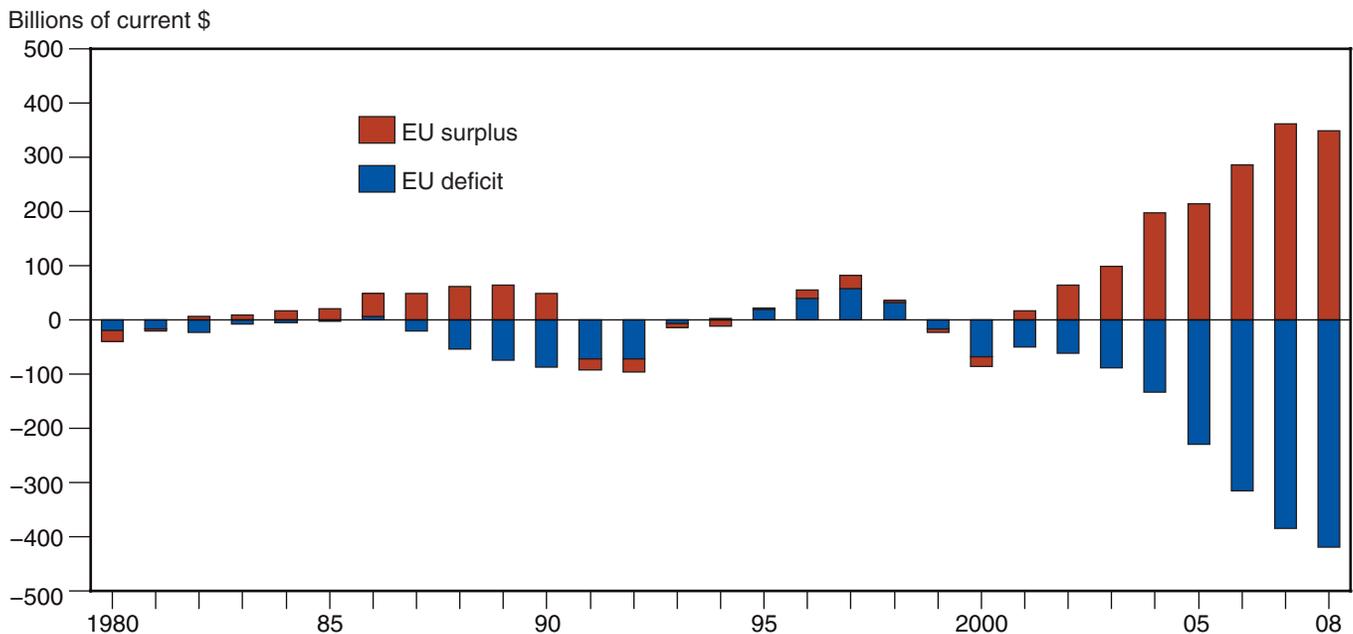
in the world markets for agricultural commodities. This implies that EU agricultural exports will become cheaper relative to U.S. exports and, thus, EU exports will increase relative to U.S. exports. While there might be some overall appreciation of the U.S. dollar in response to the Eurozone problem (mostly related to the euro), the dollar is likely to remain low by historical standards against the trade-weighted average of U.S. agricultural market countries, implying a continued growth in U.S. agricultural exports over the next decade.

Problems of a Single EU Currency

Once a set of countries move to a single currency, individual members lose the ability to devalue their own currency as a means to overcome current account deficits. While adjustments to the combined currency 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 GDP relative to the aggregate. In the event of imbalances, policy options for countries with current account deficits entail domestic adjustments in fiscal policies such as cutbacks in government programs, minimum wages, retirement benefits, and higher taxes. By inducing slower growth and lowering aggregate demand, these policies will result in lower wages and domestic prices. The objective of the domestic adjustments that induce deflation is to increase the country's relative competitiveness and thus reduce its current account deficits. For Greece to overcome its current account deficit, it has to reduce its price and wage inflation below that of the major exporters such as Germany, Sweden, and the Netherlands. Given Germany's commitment to very low rates of inflation, high productivity growth, and modest wage increases, it will be very difficult for countries such as Greece to achieve enough deflation to alter their fundamental imbalances.

Current account figures in the Eurozone countries demonstrate the growing degree of disequilibrium within the Eurozone before the crisis. Figure 1 aggregates current account surplus and deficit countries in the EU. Within

Figure 1
EU surplus countries offset EU deficit countries: current account imbalances, 1980-2008¹



¹The surplus countries are Germany, the Netherlands, and Sweden.
 The deficit countries are Spain, Italy, Greece, France, Portugal, and Ireland.
 Source: World Bank, World Development Indicators, 2010.

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. However, more troubling for the Eurozone are the widening surpluses and deficits evident since the formation of the common currency in 1999. This suggests fundamental policy discordance between the surplus and deficit Eurozone members. 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 a short timeframe for those countries to make the necessary adjustments and for the EU to begin the process of creating an institutional structure for a unified EU financial system. Not resolving the underlying policy discordance implies the potential for continuing imbalances and increasing pressures for future crises.

While in nominal terms there is only one euro for all Eurozone countries, the purchasing power of the euro differs by country because of differences in inflation, wage rates, and productivity growth. One indication of the cause of the growing imbalances since the formation of the Eurozone has been

Establishment of a European Union Common Currency

In an effort to spur deeper political integration, the EU in the past three decades took a series of steps through treaties and agreements to establish an EU common currency. In 1979, the European Council (comprised of the EU heads of state) adopted the European Monetary System (EMS), which used an exchange rate mechanism (ERM) to keep the fluctuations of their currency exchange rates within a band which became known as “the snake.” Through the EMS, a European Currency Unit (ECU) was calculated from a gross domestic product (GDP)-weighted average of the participating countries’ national currencies. Plans for the European Monetary Union (EMU) were formalized in provisions in the 1992 Maastricht Treaty which would result in the establishment of a single European currency by 1999. The Treaty set up convergence criteria that had to be met by 1998 before a member state could join the EMU:

- the country’s financial system had to be compatible with the treaty provisions controlling the European system of central banks
- its rate of inflation had to be within 1.5 percent of the inflation rates of the three participating countries with the lowest rates
- its government deficit had to be below 3 percent of its gross domestic product and total debt at 60 percent of GDP or below
- its currency exchange rates had to be within the ERM band for at least 2 years
- its interest rates had to be within 2 percent of the rates in the three countries with the lowest rates

The momentum toward the goal of a single European market without borders and a single European currency was carried forward by abolishing all physical borders of member states in 1992 to allow for the free movement of goods, capital, services, and people. The introduction of the Single Market is estimated to have decreased monopoly rents by a quarter and may have increased potential output in the range of 5 to 10 percent. By 1998, the EMU criteria were met by 11 member states, and exchange rates were fixed. In 1999, the European Central Bank (ECB) was established and the euro currency was created. Euros replaced national currencies in the 11 member states that qualified: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. Greece was admitted in 2001. Slovenia was admitted in 2007, Cyprus and Malta in 2008, Slovakia in 2009, and Estonia entered on January 1, 2011. The United Kingdom, Sweden, and Denmark opted out of the EMU in part out of concern that weak economic performance by one member state would affect all other member states.

the relative real appreciation of the euro evaluated by the inflation in Greece relative to that of Germany (fig. 2).⁴ As can be seen, before the Greeks adopted the euro in 2001, the Greeks maintained a relatively undervalued real currency compared with Germany. Between 1996 and 2000 there was relative parity in the value of two currencies. Since 2000 there has been a widening divergence in the underlying real value of the two country currencies leading to the imbalance in their current accounts (USDA/ERS, 2010a).

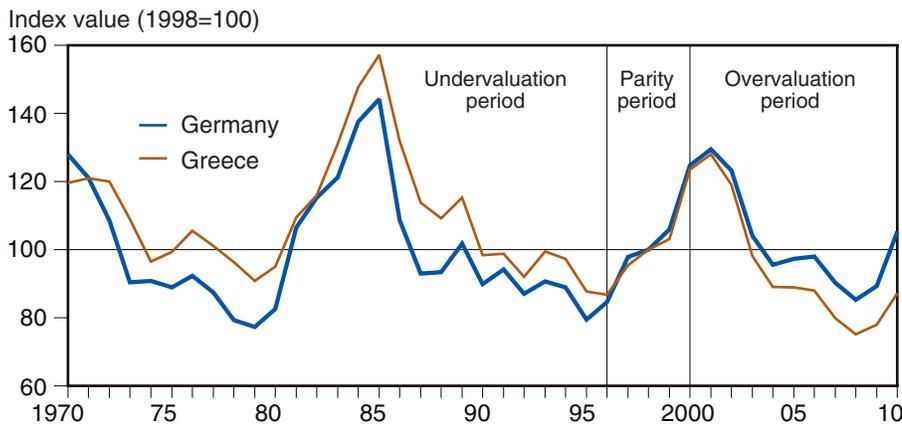
European Central Bank

The EU currently does not have the economic institutions necessary for operating a federal economy because it is an aggregation of sovereign nations and not a unified political system. It has no Federal Treasury that can borrow money and no internal mechanism to transfer funds from one member state to another. Consequently, the EU has had to rely on the European Central Bank (ECB) to provide funds to buy bonds issued by member states in danger of default. This ad hoc method has come under political and legal threat, particularly in Germany, because of resistance of the body politic towards one Eurozone country bailing out another (Wolf, 2010a).

The ECB was set up in 1998, under the Treaty on European Union. Its job is to manage the euro and to safeguard price stability in the 17 members of the Eurozone. It is also responsible for framing and implementing the EU's economic and monetary policy. It was not set up to transfer funds through loans from one member state to another, although it has been forced to do so during the Eurozone problem. The 17 member states' central banks, together with the ECB, make up what is called the Eurosystem. The ECB is intended to work in complete independence from political influence of its member states.

⁴The real euro can vary by country because underlying inflation and wage rates differ. This implies that the purchasing power of the euro can differ between countries and the competitiveness of the Eurozone countries can therefore differ even though they all use the same currency. While our calculation of the real exchange rate only incorporates differences in inflation rates, this still provides some indication of purchasing power and competitiveness across countries even with the same base currency. The formula we use to calculate real exchange rates is: $RXR_{it} = NXR_{it} \times CPI_{USt} / CPI_{it}$ where RXR is the real exchange rate, NXR is the nominal exchange rate, CPI is the consumer price index, and i is a country index and t is a time period. Using this formulation it is clear that with differences in inflation, the real exchange rate can differ by country even using the same currency.

Figure 2
**The real exchange rate indices of Germany and Greece:
 The Greek exchange rate was undervalued before the euro and
 overvalued since 2000**



Source: USDA/ERS international macroeconomic data set, 2010.

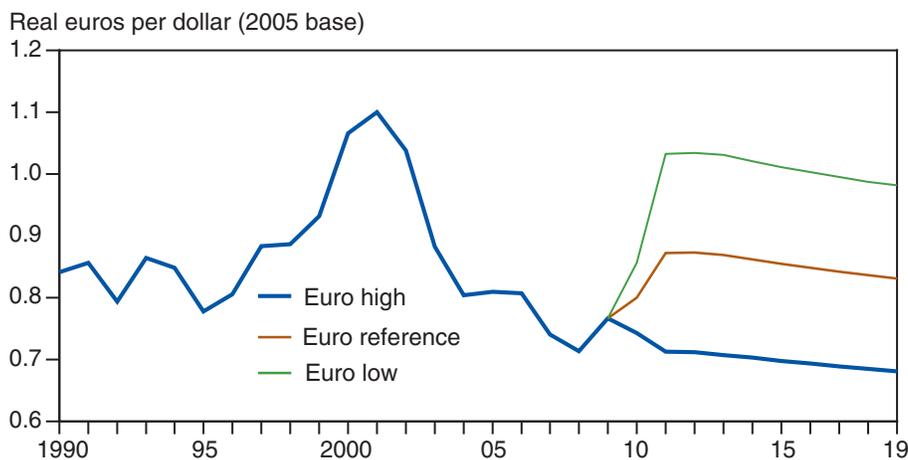
Scenario Outcomes Compared

Three scenarios are analyzed to capture the broad zone of uncertainty about the future macroeconomic path of the Eurozone countries. The greatest difference between the high and low euro scenarios is the euro to dollar exchange rate (fig. 3).

A change in the euro alone will only have a minor impact on the U.S. macroeconomic outlook. What happens to the U.S. dollar in real terms depends to a very large degree on the reaction of central bankers and treasury officials in the rest of the world and thus the economic outcome in those countries. In our high euro scenario, we assumed that most of the countries in the rest of the world allow their currencies to appreciate. In the low euro scenario, we assume that most countries will allow their currencies to depreciate, but by less than the euro. On a trade-weighted basis, this is equivalent to assuming that other countries try to maintain a relative constancy in their real effective trade-weighted exchange rates. However, this implies some appreciation of the dollar on a trade-weighted basis (fig. 4). In our reference scenario, the changes represent a middle course of exchange rate adjustment where some countries' currencies depreciate while other countries' currencies appreciate. The implications of the alternative scenarios on the EU growth rate are quite significant. The difference between the long-term growth rate between the high and low euro scenario is a loss of EU GDP growth of almost 1 percent a year (fig. 5).

In the depreciation scenarios, the low euro and reference scenarios, one interpretation of the results is that the degree of euro depreciations depends on the degree of loss of confidence by other central banks and currency holders in the euro as a reserve currency: the euro problem has exposed a weakness of the Eurozone that results in some flight from the euro to the dollar. In the low euro scenario, in addition, we assume that net investment stagnates in the EU as a result of the lack of confidence in the ability of the Eurozone to overcome the structural imbalances between its member countries. Besides

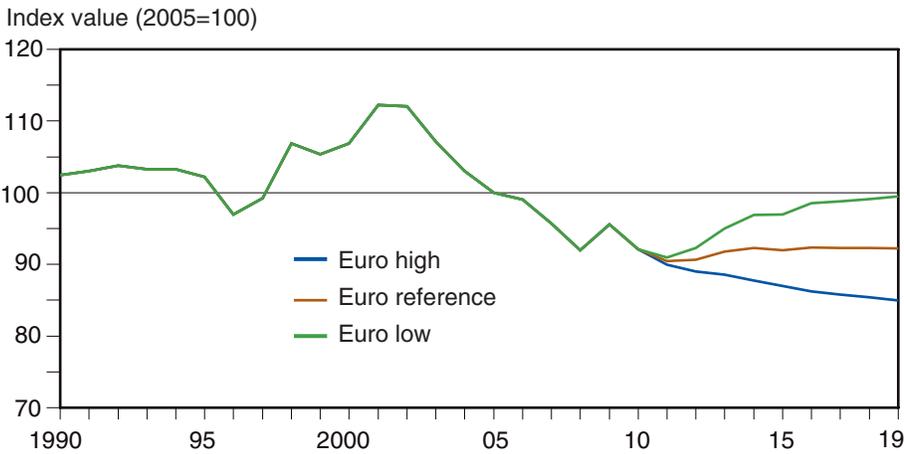
Figure 3
**Real euros per dollar scenarios:
 The euro responds to the sovereign debt crisis**



Note: 2011-2019 are scenario runs.
 Source: USDA, ERS exchange rate data set, 2010.

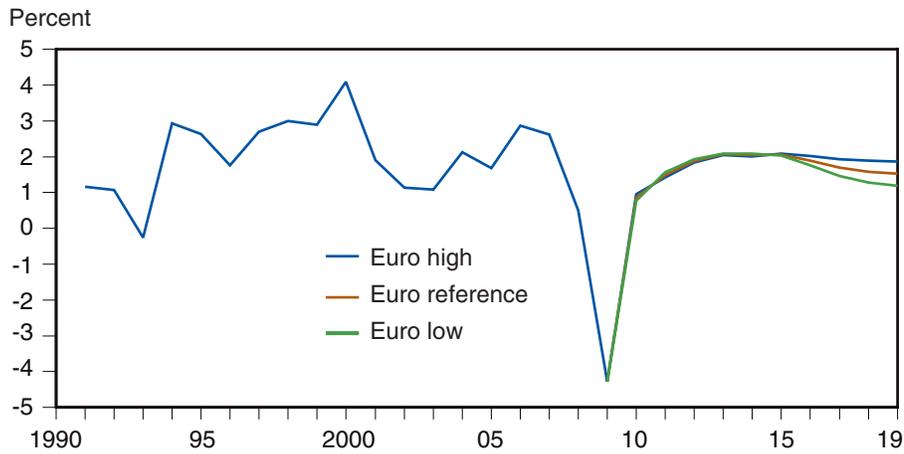
leading to a depreciation of the euro, the inflow of funds into the U.S. capital market results in a decline in U.S. long-term interest rates. This decline in long-term interest rates in turn will reduce the cost of investments and will tend toward raising the overall U.S. GDP growth rate.

Figure 4
**U.S. agricultural trade-weighted real exchange rate:
 The rest of the world responds to the euro depreciation**



Note: 2011-2019 are scenario runs.
 Source: USDA, ERS exchange rate data set, 2010.

Figure 5
**Eurozone GDP growth rate projections under alternative scenarios:
 A continued euro crisis would dampen growth prospects**



Note: 2011-2019 are scenario runs.
 Source: USDA, ERS exchange rate data set, 2010.

The Potential Effects of the Euro Problem on Agricultural Trade

The macroeconomic effects of the euro problem can have significant implications for agricultural trade as exchange rates, investment, GDP growth, interest rates, inflation, and productivity are affected in countries around the world. The primary factors that affect agricultural trade are income growth and the relative prices of agricultural commodities and products affected by 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 GDP growth, and GDP growth of emerging economies. The alternative macroeconomic scenario assumptions run through the Oxford Economic Forecasting Model provides the GDP and exchange rate results for the major economies in the rest of the world. These results are then used in the PEATsim model to estimate the effect on agricultural trade for the 37 commodities and in the 9 regions in PEATsim. Trade effects for the three scenarios are compared in the results that follow.

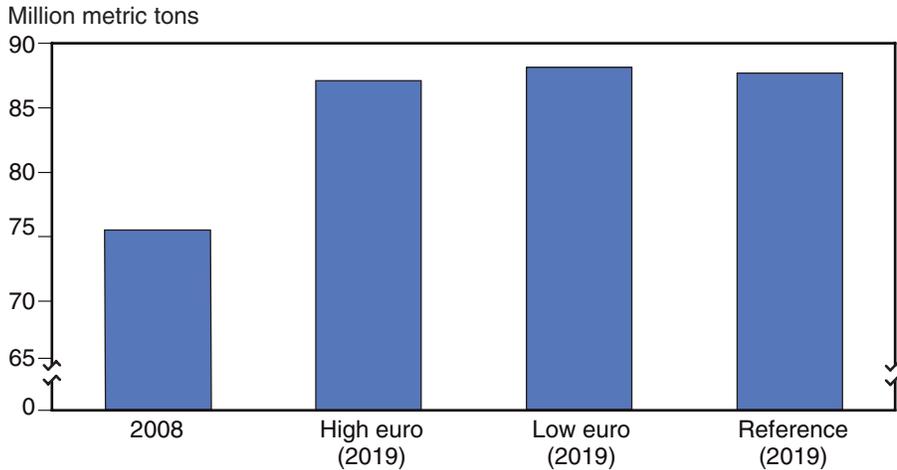
The most salient results are in the pork, poultry, wheat, and other coarse grains (principally barley) sectors. Compared with the high euro scenario, imports increase in emerging economies in the low euro scenario and the reference scenario as higher investment levels raise their GDP, stimulating greater demand for livestock products and food and feed grains. The EU benefits substantially from higher exports of these commodities due to a lower euro relative to other exporting countries' currencies. But the overall increase in import demand in the rest of the world, particularly in emerging economies, spills over to other competing countries as well. Relative to the high euro scenario, U.S. exports increase substantially for corn, wheat, and pork, modestly for other coarse grains, soybeans, poultry, and beef while soybean exports decline marginally. These results are driven primarily by changes in investment flows and income growth, rather than exchange rates. An analysis of commodities of interest to the United States follows.

Grains

The United States exports more wheat and coarse grains in the low euro scenario, compared with reference or high euro scenarios, as demand for food and feedgrains in emerging economies increases with higher incomes (fig. 6). U.S. corn exports increase to feed larger pig herds in emerging market economies. EU exports of wheat and other coarse grains increase as the euro depreciation allows the EU price to be more competitive. However, U.S. grain exports also increase, as global demand provides the United States with a larger export market despite the rise in the U.S. dollar relative to the depreciated euro.

Figure 6

U.S. grain exports: 2008 historical data* and 2019 projected scenarios**



Sources: * = USDA, ERS Foreign Agricultural Trade of the United States data set;
 ** = Oxford Global Macro Model projections and USDA, ERS PEATsim model results.

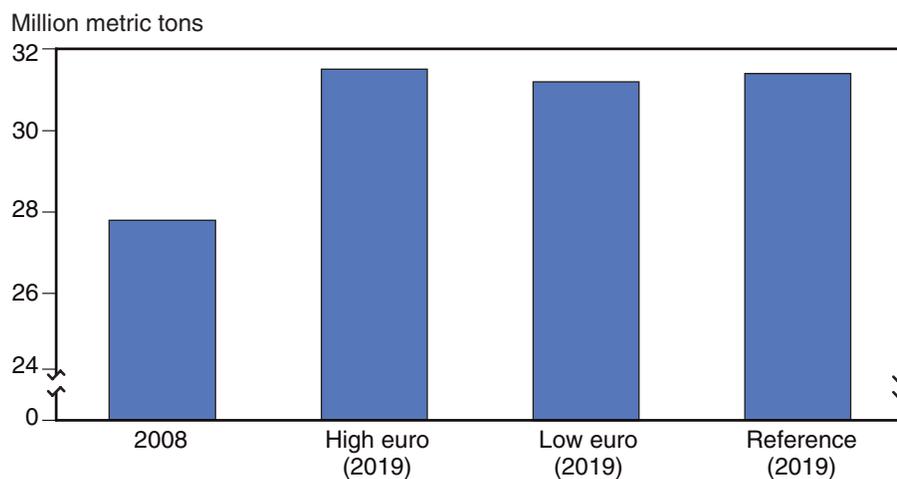
Soybeans

Demand for U.S. soybeans decreases marginally in the low euro scenario relative to the high euro and reference scenarios as GDP growth increases the demand for soy meal imports in developing countries, replacing soybean imports somewhat (fig. 7). The EU does not export soybeans—so the euro devaluation has no direct effect on U.S. soybean exports since the EU is not a competitor in this sector—but the EU does import soybeans and soy meal. Brazil and Argentina’s soy meal exports increase marginally in the low euro scenario because the demand for feeds for livestock in emerging market economies increase. However, growth of soy meal and soybeans from Brazil and Argentina in 2008-2019 leads to lower U.S. soybean exports in 2019 overall.⁵ The EU demand for soybeans and soy meal declines in the low euro

⁵ See USDA (2010) for a detailed analysis.

Figure 7

U.S. soybean exports: 2008 historical data* and 2019 projected scenarios**



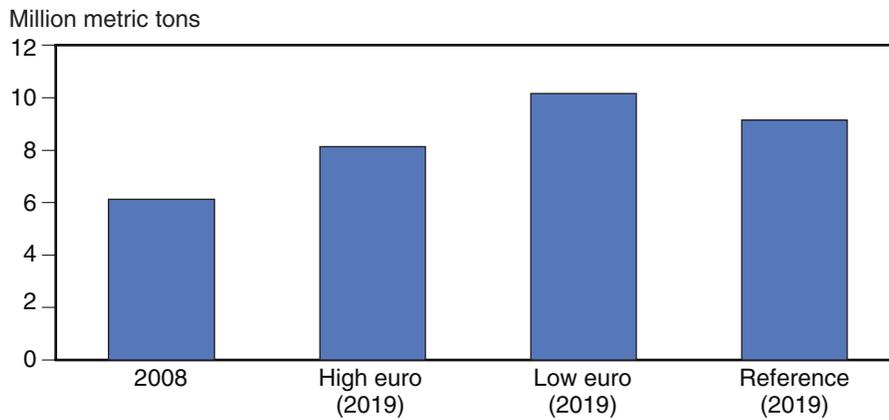
Sources: * = USDA, ERS Foreign Agricultural Trade of the United States data set;
 ** = Oxford Global Macro Model projections and USDA, ERS PEATsim model results.

scenario as EU meat demand slows with lower EU GDP growth relative to the high euro and reference scenarios.

Livestock Products

U.S. pork exports increase significantly in the low euro scenario compared with the reference and high euro scenarios. U.S. exports of beef and poultry increase slightly in the low euro scenario despite a lower euro and increased exports of EU pork and poultry. The depreciation of the euro and the increase in GDP in developing markets give an advantage to EU poultry and pork exports relative to beef. EU beef is not competitive in the world market because of its low quality and thus, EU beef exports are confined to markets that are not designated as being free of foot-and-mouth disease (FMD).

Figure 8
U.S. meat exports: 2008 historical data* and 2019 projected scenarios**



Sources: * = USDA, ERS Foreign Agricultural Trade of the United States data set;
** = Oxford Global Macro Model projections and USDA, ERS PEATsim model results.

Conclusions

Our analysis shows that an understanding of an integrated world economy where capital flows affect investment, income levels, and exchange rates is critical to a comprehensive analysis of global agricultural markets. While it may seem logical to assume that U.S. agricultural exports would be adversely affected by a significant devaluation of the euro, considerations of other macroeconomic factors greatly alter the outcome. U.S. agricultural trade analysts must take into account which countries are affected by a change in exchange rates and GDP and whether the countries are competitors in export markets or a source of import demand. For importers, it is important to know how their income levels are affected by the movement of capital around the globe. These capital movements can change productivity, inflation, and income levels, significantly affecting demand and supply patterns.

In the analysis applied to the low euro scenario where the euro exchange rate declines significantly and no growth in net investment results in slower growth in EU incomes, the EU domestic market changes as well. EU meat consumption and feeding rates decline, allowing feedgrains and livestock products to be exported to countries with growing economies, principally emerging economies that have benefitted from higher investment rates. Significant price changes result from exchange rate adjustments but other macroeconomic factors are important determinants of trade patterns when global investment flows affect GDP levels. The low euro scenario in this analysis demonstrates the complexity of the effects of macro variables on U.S. agricultural trade. In the final analysis, U.S. exports fare quite well for nearly all commodities, particularly in the low euro scenario as emerging markets benefit from an increase in investment. That scenario results in higher GDP levels and greater import demand for livestock products and food and feedgrains, which the United States is able to supply.

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