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# The 2008-09 Recession and Recovery

## Implications for the Growth and Financial Health of U.S. Agriculture

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Approved by USDA's  
World Agricultural  
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### Abstract

U.S. agriculture was better positioned than most U.S. industries entering the recession, was less affected by the recession than most other U.S. industries, and is well positioned to continue to do well in the years ahead. The growing importance of developing countries as markets for U.S. agricultural exports, strong balance sheets in U.S. agriculture going into and coming out of the recession, healthy financial institutions supporting agriculture, and prospects for a continued low real trade-weighted dollar exchange rate are supporting relatively strong growth in the farm sector. These economic and financial factors, along with underlying gains in agricultural research and productivity and in expanding and improving access to markets for farm products, suggest a strong outlook for U.S. agriculture as U.S. and global economies continue their recovery.

**Keywords:** World economic crisis, U.S. agriculture, U.S. agricultural exports, financial stress, agricultural credit, economic growth, developing countries, developed countries

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## Introduction

Between the late 1990s and mid-2000s, world economic growth was facilitated by an environment of low interest rates and easy credit. In that environment, demand in developed countries, especially the United States, grew rapidly against a backdrop of surging growth in both credit and asset prices. Strong growth in developed countries fostered expansion in developing countries by providing a robust market for exports and expanding specialized capital flows. Developing countries, in turn, fostered world growth with their willingness to finance developed country trade deficits through capital outflows and increased demand for developed country exports. Between 1998 and 2007, annual economic growth averaged 3.2 percent for the world, 2.7 percent for the United States, 2.2 percent for developed countries outside the United States, and 5.2 percent for developing countries (USDA/ERS, 2012c).<sup>1</sup> During this period, real world trade grew at an average annual rate of 7.0 percent, indicating greater openness and dependence on trade (IMF, 2011b).

U.S. agricultural exports, especially those to developing countries, benefited from stronger world growth. Approximately 22 percent of U.S. agricultural production is exported, accounting for almost 10 percent of total U.S. merchandise exports. Between 1998 and 2007, leading up to the 2008 U.S. recession, U.S. agricultural exports grew at an annual rate of 9 percent in nominal terms but just 2.0 percent in real terms, indicating the strong upward pressure on prices from international growth.<sup>2</sup> The U.S. agricultural export share to developing countries continued to grow, reaching more than 60 percent of total U.S. agricultural exports in 2011 compared with only 26 percent in 1970 and 40 percent in 1998 (USDA/FAS, 2012).

The 2008-09 recession reversed the pre-recession pattern. Financial problems in the United States and other developed countries led to lower real and financial asset prices worldwide. Lower asset values resulted in weaker economic growth, greater economic uncertainty, increased risk aversion, and heightened liquidity needs on the part of business and consumers. This environment led to deleveraging<sup>3</sup> by consumers, businesses, and financial institutions. Lower asset values diminished the value of loan collateral, increased loan default rates, raised lender's borrowing terms, and required greater returns by asset holders and investors. U.S. and global economic growth fell as depressed asset values, declining borrower income, and reduced wealth slowed both consumer spending and business investment (Chinn and Frieden, 2011). In 2009, real U.S. output declined 3.5 percent, while real world output declined 2.2 percent (USDA/ERS, 2012c).

This report analyzes both the impacts of the 2008-09 recession on the growth and financial condition of U.S. agriculture and the prospects for U.S. agriculture during the ongoing recovery. We also address the sources and prospects for growth in demand for U.S. agricultural products, focusing on the increasing importance of developing country markets.

<sup>1</sup>Developed countries include the United States, Canada, EU15, Iceland, Norway, Switzerland, Japan, Australia, and New Zealand, while developing countries include Latin America, Cyprus, Malta and Gozo, Asia (excluding Japan), the Middle East, and Africa.

<sup>2</sup>We use both nominal and real values in this report. Real values do not reflect inflation, which is taken out either by deflating with a suitable price index or by using quantities of exports directly, such as so many tons of wheat exports. When we do not specifically refer to real or nominal values, nominal values are assumed.

<sup>3</sup>Reducing the ratio of debt to assets by paying down debt.

## U.S. Agriculture Likely To Continue To Grow Despite the Sluggish Economic Recovery

Historically, the strength of a Nation's economic recovery is dependent on overcoming the problems that caused the recession. Table 1 compares the seven U.S. recessions since 1960 in terms of length; depth; recovery growth rates for the first, second, and third years; primary causes of each recession; and the degree of financial market stress, as proxied by the spread between the Moody's Baa<sup>4</sup> (medium credit quality) corporate bond rate and the 10-year Treasury bond. The National Bureau of Economic Research (NBER) set the beginning of the recession as fourth quarter (Q4) 2007 and second quarter (Q2) 2009 as the ending date.<sup>5</sup>

Using Q2 2009 as the recession ending date ranks the recent recession as the most protracted recession since 1960. Lasting six quarters, the 2008-09 recession exceeded the Q4 1973 to Q1 1975 and the Q3 1981 to Q4 1982 recessions. The current recession was also significantly deeper than the two previous recessions, with a peak-to-trough fall in gross domestic product (GDP) of 5.2 percent that significantly exceeded the 3.2 percent fall for the Q4 1973 to Q1 1975 recession and the 2.6 percent fall of the Q3 1981 to Q4 1982 recession. Furthermore, the 2008-09 recession was by far the most severe in terms of credit spreads, credit availability, and deteriorating wealth and asset values. The average spread of the Baa corporate bond rate over the 10-year Treasury bond during the recession exceeded the previous peak recession bond quality spread from the 2001 recession by 1.25 percent.

<sup>4</sup>Moody's Investors Service (or Moody's) is a credit rating company that rates corporations' and governments' financial standing.

<sup>5</sup>While the NBER describes the recession as beginning in 2007, we will refer to it as the 2008-09 recession for the purposes of this report.

Table 1

### U.S. recessions since 1960

| Recession       | Length<br><i>Quarters</i> | Decrease<br>in<br>real GDP | Recovery<br>in<br>year 1<br><i>Percent</i> | Growth in<br>real GDP<br>in years<br>2 and 3 | Primary causes of recession  | Bond<br>spread |
|-----------------|---------------------------|----------------------------|--|--|--|----------------|
|                 |                           |                            |  |  |  | <i>Percent</i> |
| Q2 1960-Q1 1961 | 3                         | 0.5                        | 7.5  | 4.9  | Sharp pullback in consumer durables and inventory correction.          | 1.20           |
| Q4 1969-Q4 1970 | 4                         | 0.2                        | 4.5  | 5.5  | Rising inflation and contractionary monetary policy.                   | 1.67           |
| Q4 1973-Q1 1975 | 5                         | 3.2                        | 6.2  | 3.7  | Oil embargo, rising inflation, and tighter monetary and fiscal policy. | 2.15           |
| Q1 1980-Q3 1980 | 2                         | 2.2                        | 4.4  | 1.4  | Oil price shock, high inflation, and tight monetary policy.            | 2.32           |
| Q3 1981-Q4 1982 | 5                         | 2.6                        | 7.7  | 4.9  | High inflation and tight monetary policy.                              | 2.78           |
| Q3 1990-Q1 1991 | 2                         | 1.4                        | 2.6  | 3.4  | Tighter monetary policy, credit crunch and Iraq war.                   | 2.07           |
| Q1 2001-Q4 2001 | 3                         | 0.7                        | 1.9  | 3.4  | Stock market bubble.   | 2.96           |
| Average values  | 3.4                       | 1.3                        | 5.0  | 3.9/4.3*                                     |  | 2.16           |
| Q4 2007-Q2 2009 | 6                         | 5.1                        | 3.3  | 2.0**  | Real-estate bubble, sub-prime mortgage                                 | 4.21           |

GDP=Gross domestic product.

\*4.3 percent if the Q1 1980 to Q3 1980 aborted recovery is not included, U.S. economy peaked and re-entered recession in Q3 1981, thus the second and third year of recovery did not exist. \*\*Average of U.S. Bureau of Economic Analysis estimates and data from the Survey of Professional Forecasters for 2012 from Q4 2011 survey.

Source: National Bureau of Economic Research, 2010.

The strength of an economic recovery is strongly related to how quickly the original shock subsides or is countered by expansionary developments in other areas, such as short-term easing of monetary and fiscal policy, improving domestic or international trade competitiveness, strengthening financial conditions, or lower energy prices. The three strongest recoveries (1960-61, 1969-70, and 1981-82 recessions) were characterized by significant easing of the conditions that caused the downturn and generally mild credit disruptions that did not impede a normal recovery.

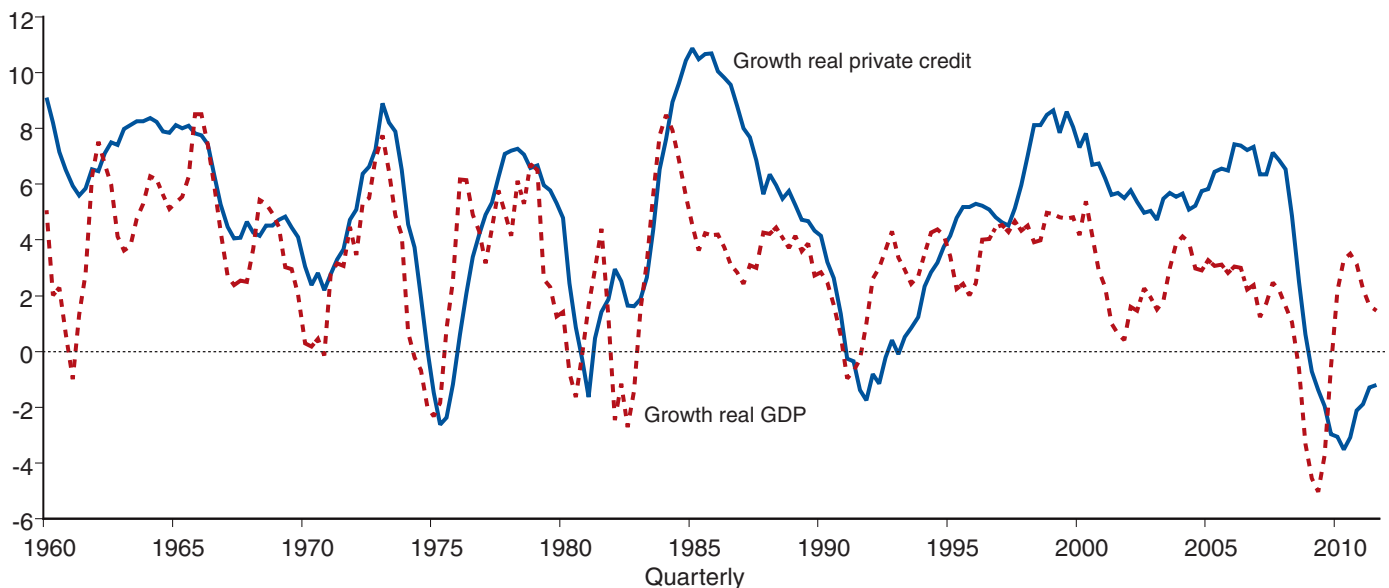
Recoveries typically are slower to develop during recessions characterized by pronounced financial difficulties (Cerra and Saxena, 2008; Terrones et al., 2009; Gjerstad and Smith, 2010). Periods of major financial stress generate large increases in credit quality spreads between low- and higher-risk borrowers, falling equity and asset values, and sharp reductions in credit availability that causes significant and prolonged adjustments to the spending behavior of businesses and consumers. A strong link exists between real private credit growth and real growth in GDP, and the dramatic credit slow-down since 2007 played a strong role in the depth of the recession and the weak economic recovery (fig. 1).

Thus far, the recovery from the 2008-09 recession has followed the weaker-than-normal pattern of the previous two recessions, which were also characterized to a lesser extent by financial disruptions. Given the greater magnitude of the downturn and extreme financial disruptions, most economists believe the pace of the current recovery will remain below typical recoveries through at least 2012 and will be uneven across sectors. Economists' forecasts rely a great deal on the Survey of Professional Forecasters, which indicates that the recovery through 2012 will remain low, uneven across sectors, and gradually

Figure 1

**Declining private credit since 2009 has impeded the pace of recovery**

Percent



GDP=Gross domestic product.

Source: U.S. Department of Commerce, 2012; Board of Governors of the Federal Reserve System, 2012.

improving.<sup>6</sup> U.S. industrial sectors with large foreign export exposure (especially to developing economies), such as many areas of U.S. capital goods, consumer durable goods manufacturing, and agriculture, are growing at a moderate to strong pace. Through Q3 2011, real household wealth was 21 percent below its 2007 peak, and consumers curtailed credit use to rebuild wealth, while credit standards for consumer lending remain stubbornly high. Both residential and nonresidential construction activity remained depressed, with minimal growth and depressed prices that discouraged additional construction. Federal and municipal spending has been restricted by tight budgets and borrowing constraints.

<sup>6</sup>The Survey of Professional Forecasters is compiled by the Federal Reserve Bank of Philadelphia and provides median forecasts by private and academic economists of major U.S. economic variables for broad categories of U.S. economic output, inflation, and financial variables.

## 2008-09 Recession Affected Developed and Developing Countries Differently

The 2008-09 recession was the deepest and longest witnessed by U.S. and global economies since the 1930s. Contrary to previous global economic crises, the causes and consequences were seen mostly in developed countries. While lingering consequences have led to weak recoveries and continued problems for developed countries, particularly the United States, the EU, and Japan, developing countries were less affected by the recession. In general, developing regions sustained or resumed relatively high rates of growth in the aftermath, although both China and India had to tighten monetary policy and slowed growth to contain inflationary pressures.

While both developed and developing countries showed declines in 2008 and 2009, developed countries went into a severe recession whereas the developing countries only had a growth slowdown (fig. 2). By 2010, both groups of countries were in recovery, but the difference in relative growth rates was around 4 percent per year. The growth difference between developed and developing countries has been increasing for some time, and the 2008-09 recession reinforced this pattern and likely will persist into the future. The growth differential prior to 2000 was almost half of what it has been since then (fig. 3). The longer-term effect of this growth differential will be a shift in economic activity from developed to developing countries (USDA/ERS, 2012c) (fig. 4).

### Resilient Growth in Developing Countries Buoy Agricultural Trade

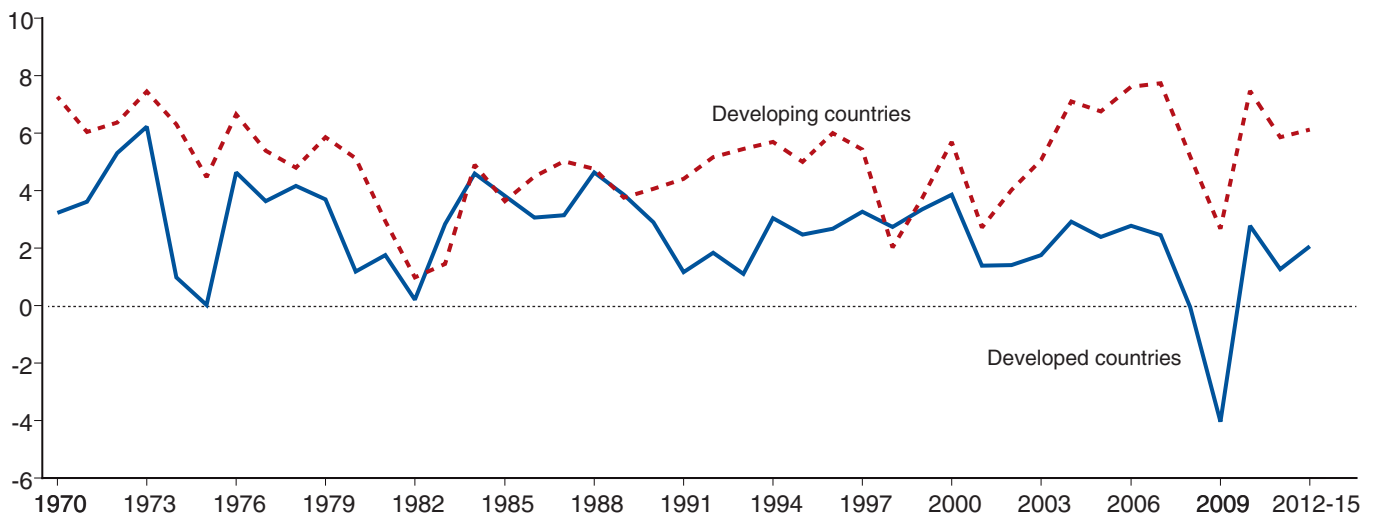
Real world trade fell by 11 percent in 2009, and developed country exports declined nearly 13 percent (IMF, 2011b). Those countries reliant on

Figure 2

#### Global recession of 2008-09

*Developing countries continue to be less affected*

Percent change

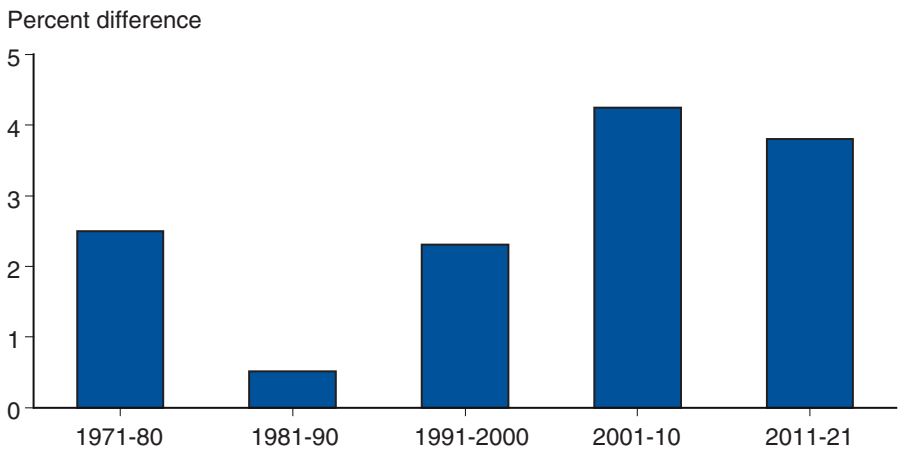


Source: USDA, Economic Research Service, *International Macroeconomic Data Set*, 2012c.

exporting expensive durable consumer and business goods, such as Western Europe and Japan, were hit especially hard by the 2008-09 global recession (Wang, 2010). Real net exports of the European Union fell nearly 14 percent, reflecting the importance of durable goods exports for business and consumers. Exports were also constrained by reduced credit availability to firms involved in trade (Wang, 2010; Wynne and Kersting, 2009).

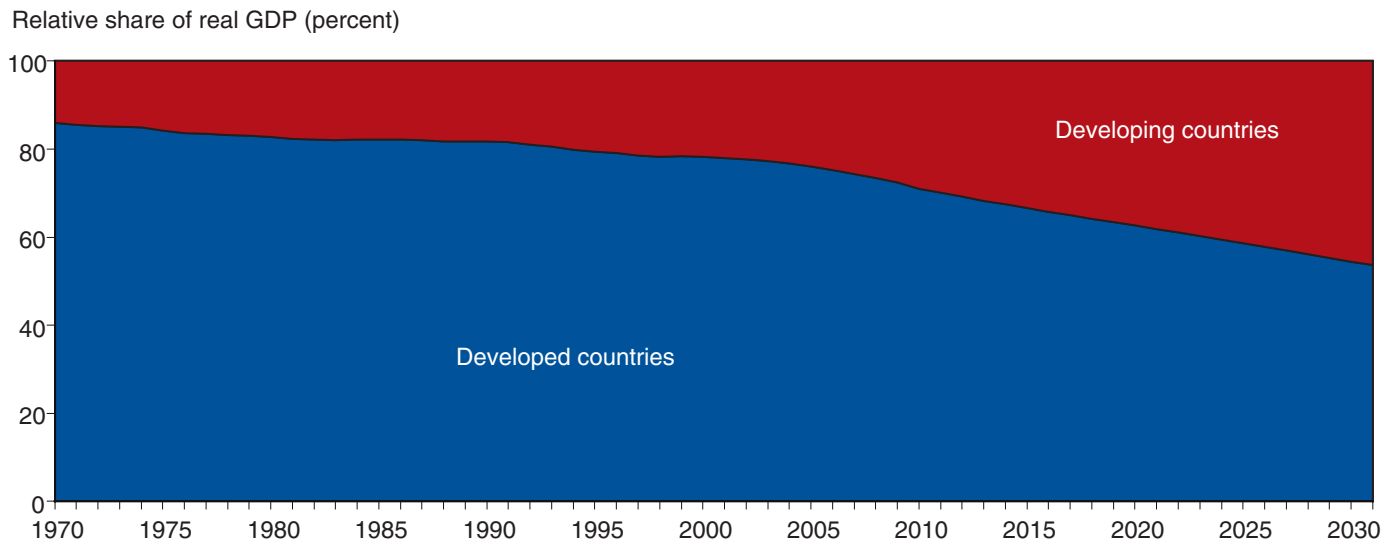
With international goods production becoming increasingly specialized and goods crossing borders more frequently as a part of the production process, tight international credit conditions have a greater impact on reducing foreign trade. Many firms involved in international trade found it difficult to obtain credit and insurance for traded goods. Wynne and Kersting (2009) found that

Figure 3  
**Real growth in GDP: Developing less developed countries**



Source: USDA, Economic Research Service, *International Macroeconomic Data Set*, 2012c.

Figure 4  
**Trends show a shift in economic activity toward developing countries in coming years**



GDP=Gross domestic product.  
 Source: USDA, Economic Research Service, *International Macroeconomic Data Set*, 2012c.

both U.S. exports and imports decreased significantly more than expected based solely on falling domestic and foreign income and the stronger value of the dollar, indicating that the lack of trade credit played a significant role in the depressed state of U.S. and world trade from the second half of 2008 and through 2009.

Real exports of developing countries have been affected less by the recent global recession, but still fell 8 percent in 2009 (IMF, 2011b). Developing country exports were affected less because of their greater reliance on less income-sensitive nondurable exports. In addition, their banking systems saw fewer negative effects, allowing their exporters better access to trade credit to support exports. Regional trade among developing countries was also supported by smaller declines in developing country GDP growth and less pronounced credit constraints during the global downturn.

## U.S. Agricultural Exports Rebound Strongly

U.S. agricultural exports, while not affected as greatly as nonagricultural exports, were not immune to the impact of global recession. Real U.S. agricultural exports fell 2.0 percent in 2009 after increasing 5.3 percent in 2008.<sup>7</sup> Exports of high value products, such as fresh beef and dairy, fell 6 and 39 percent, respectively. Given the basic nature of food and agricultural products, agricultural exports are normally less sensitive to changes in real foreign disposable income than are some other products, particularly durable goods exports.

U.S. agricultural export growth is increasingly dependent on developing countries and has benefited from the relatively strong economic performance of developing countries during 2008-11, as well as the depreciation of the U.S. trade-weighted dollar between 2002 and 2012 (USDA/ERS, 2012c). U.S. agricultural exports rebounded sharply in 2010 and 2011, surging 18 and 16 percent, respectively, in nominal dollars relative to 2009.<sup>8</sup>

In 2011, U.S. agricultural exports exceeded \$136 billion. The growth in post-recession exports was about twice the historical average between 1998 and 2007, the decade preceding the recession. Developing countries' share of U.S. agricultural exports rose to more than 60 percent in 2011.<sup>9</sup> Economists anticipate that U.S. agricultural exports will continue to grow at above historical average rates over the next decade (World Agricultural Outlook Board (WAOB), 2012).

## Foreign and Domestic Investment Help Sustain High Growth in Developing Countries

Large and growing capital inflows,<sup>10</sup> mostly in the form of foreign direct investment, supported the increasing economic growth in developing countries over the last two decades (Kumar, 2007).<sup>11</sup> Private capital inflows include foreign purchases of debt and equity securities, direct investment, and commercial borrowing. Foreign direct investment is especially important to developing countries because it is the most stable form of long-term capital inflows with the greatest amount of long-term sharing of management, employee training, and technology between the parent company and its foreign subsidiary (Kumar, 2007). Foreign direct investment promotes higher

<sup>7</sup>Real agricultural export data were based on nominal agricultural export data from FAS's Global Agricultural Trade System (2012) and deflated based on the Department of Commerce, Bureau of Labor Statistics Export Price Index for end use agricultural commodities (food, feeds, and beverages) (2012).

<sup>8</sup>For more information, see ERS's Foreign Agricultural Trade of the United States (FATUS) datasets for the monthly summary and top 10 U.S. agricultural export markets for wheat, corn, soybeans, and cotton, by volume at <http://www.ers.usda.gov/Data/FATUS/index.htm#monthly>.

<sup>9</sup>The comparison is in nominal value terms.

<sup>10</sup>Increase in the amount of money available from external or foreign sources for the purchase of local capital assets, such as buildings, land, and machines.

<sup>11</sup>For statistical purposes, the IMF defines foreign direct investment as a foreign enterprise or individual that owns at least 10 percent of the voting stock of a firm (IMF, 2003).



levels of overall investment in developing countries and increases their export competitiveness and capacity.

Net private capital inflows and foreign direct investments were relatively small through the 1990s, but they grew exponentially between 2002 and 2007 (fig. 5). Most of the decline in capital flows to developing countries during 2008-09 was bank related, reflecting the worldwide financial crisis and extreme contraction in lending by commercial banks. While net private capital flows to developing countries dropped sharply in 2008, capital flows rebounded in 2009, 2010, and 2011, boosting developing country growth. The IMF projects that this increase will continue in 2012 (IMF, 2011a). In addition to the strong inflows of capital to developing countries, gross domestic saving rates also were consistently high, averaging around 30 percent of GDP between 2000 and 2010 and providing additional support for domestic investment. By contrast, gross domestic savings rates averaged about 20 percent in high income, OECD<sup>12</sup> countries (IBRD (World Bank), World Development Indicators, 2011).

<sup>12</sup>Organisation for Economic Co-operation and Development.

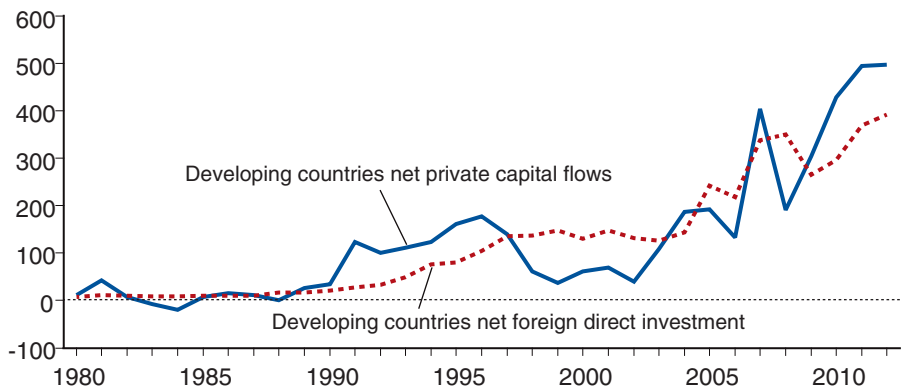
Developing countries have been able to sustain relatively high rates of growth and import demand by ensuring that:

- Their financial institutions avoided asset losses by not purchasing lower-grade mortgage backed securities issued by developed countries. As a result, developing countries reduced their exposure to the high risk financial environment that generated the global downturn and an aftermath that has slowed economic recovery for developed countries.
- Equity markets rebounded more strongly. Rising equity markets in developing countries have increased their wealth, making it easier to raise funds for business expansion. By increasing their wealth, developing countries also have encouraged stronger growth in domestic consumption.
- Housing prices held up well from 2007 to 2009 (*Global Property Guide*, 2008-11). While property values fell sharply in the United States and Europe over this period, property values continued to appreciate significantly in developing Asia through 2010, especially in China, Taiwan, and

Figure 5

**Net foreign capital inflows to developing countries have grown rapidly since 2002**

Billion U.S. dollars



Source: International Monetary Fund, *World Economic Outlook Database*, 2011a.

Hong Kong, and in developing Latin America. As inflation continued to rise in 2011, Asian central banks tightened monetary policy, particularly in China, bringing property values under pressure. Nonetheless, financial institutions and homeowners in developing countries avoided the widespread decline in household wealth and loan default problems that plagued developed countries.

The robust economic growth in developing countries relative to the United States produced a strong real appreciation in emerging country currencies relative to the dollar over the last decade. As measured by the Federal Reserve Board's real developing country index, developing country currencies appreciated 22 percent from February 2003 to December 2011.<sup>13</sup> The continuing economic growth differentials and large trade surpluses in favor of developing countries indicate that the dollar should continue to depreciate relative to developing country currencies, further boosting agricultural exports to developing countries over time.

<sup>13</sup>Board of Governors of the Federal Reserve System OITP (other important trading partners) real index, <http://www.federalreserve.gov/releases/h10/summary/>.

## U.S. Agriculture Has Exhibited Much Less Financial Stress than Other Sectors

Easy credit standards during the late 1990s through late 2007, coupled with the severity of the recession, produced loan default rates—a key measure of financial stress—at commercial banks near or above historical peaks for most categories of nonagricultural loans. In comparison, while delinquency and default rates on agricultural loans at commercial banks have increased, they have remained far lower in relative terms than nonagricultural loans.<sup>14</sup> Farm Credit System farm loan rates have been lower than those at commercial banks. Commercial banks and the Farm Credit System dominated lending to the farm sector, holding over 85 percent of farm debt in 2010.<sup>15</sup>

While delinquency rates have risen moderately since mid-2008, charge-off rates have remained below 0.40 percent (fig. 6). Farm Credit System delinquency and charge-off rates on farm loans, both current and historical, have been below the delinquency and charge-off levels for farm loans at commercial banks. The lower rates reflect the overall less risky nature of Farm Credit System borrowers in the aggregate, which in turn reflects the different risk return preferences of farm borrowers and lenders. Farley and Ellinger (2007) found that Farm Credit System borrowers tended to be wealthier, more financially leveraged, larger-scale farm operators who were more sensitive to credit costs than farm borrowers from commercial banks. Conversely, farm borrowers from commercial banks were smaller, less leveraged borrowers who were more concerned with long-term credit access with their lender. The Farm Credit System must deal with more legal constraints when diversifying its borrower base into nonagricultural

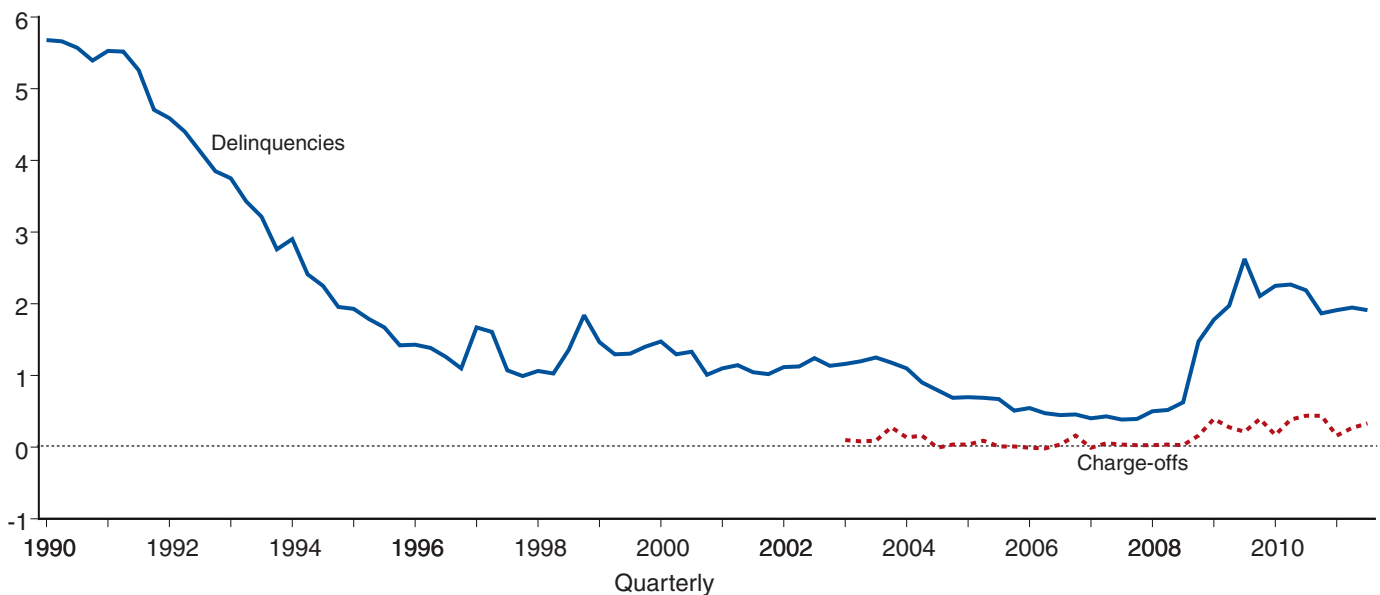
<sup>14</sup>Commercial bank delinquent loans and leases are those 30 days or more past due, and loan charge-offs are loans and leases removed from the books and charged against loan loss reserves. Loan charge-offs reduce income and net assets of the financial institution. (For more information, see <http://www.federalreserve.gov/releases/chargeoff/>.) The Farm Credit System defines delinquent loans as those 90 days or more past due. (For more information, see <http://www.farmcredit-ffcb.com/farmcredit/serve/public/finin/quarin/report.pdf?assetId=178938&uniq=1309293421265>.)

<sup>15</sup>Data on farm debt and lender shares may be found at <http://www.ers.usda.gov/Data/FarmBalanceSheet/FBSDMU.HTM>.

Figure 6

### Farm Credit System delinquency and charge-off rates

Percent



Note: Charge-offs have only been reported since 2003.

Source: Farm Credit System, *Quarterly and Annual Information Statements*, 2011.

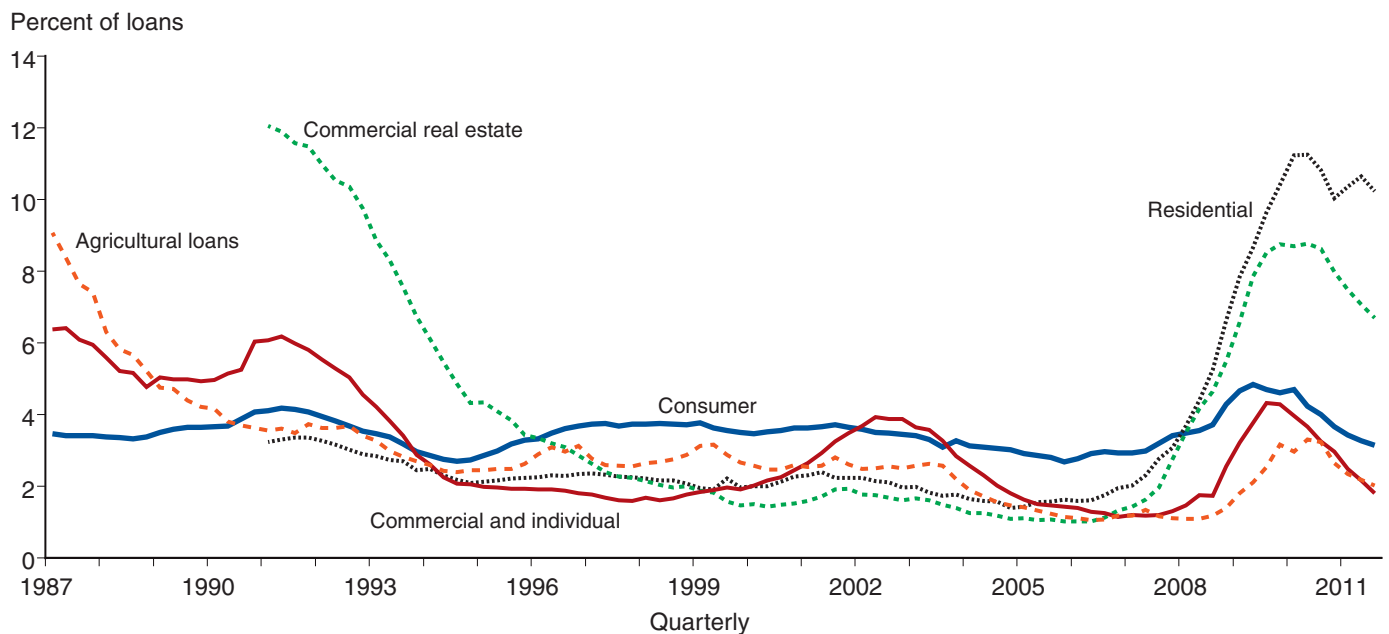
lending. Given its less diversified loan base and its general lower cost of larger denomination debt liabilities, the Farm Credit System competes strongly with commercial banks for larger farm borrowers with excellent credit ratings (Boehlje and Gray, 2005).

Delinquency and charge-off rates for consumer, residential, and commercial real estate have eased somewhat in recent quarters but remain near peak historical values at the time of writing (figs. 7 and 8). While commercial and industrial loan delinquency rates peaked below historical levels for 1987 and 1991, charge-off rates on these loans exceeded their previous historical peaks by late 2009. Delinquency rates for mortgages and nonmortgage consumer credit exceeded their previous peaks, while default rates for these loans soared far above their historical highs, reflecting difficult labor markets and high debt burdens relative to income. Charge-off rates for commercial mortgages also exceeded previous peaks as result of dramatically lower prices for commercial real estate properties and higher vacancy rates in many parts of the United States.

Farm loan delinquency and charge-off rates rose during 2008 and 2009, but they remained moderate compared with other types of loans and low compared with agricultural loan delinquency and charge-off rates in the late 1980s. The decline in farm delinquency rates in 2010, coupled with high farm income in 2010 and 2011, indicated that farm loan charge-off rates were moving back toward long-term trend levels.

In addition to the resilient demand for U.S. agricultural products afforded by developing country income growth and the depreciating U.S. dollar, the

Figure 7  
**Commercial bank loan delinquency rates**  
*Delinquency rates near peak levels for all loans but decreasing over time*



Note: Residential and commercial real estate series data were not available until 1992.

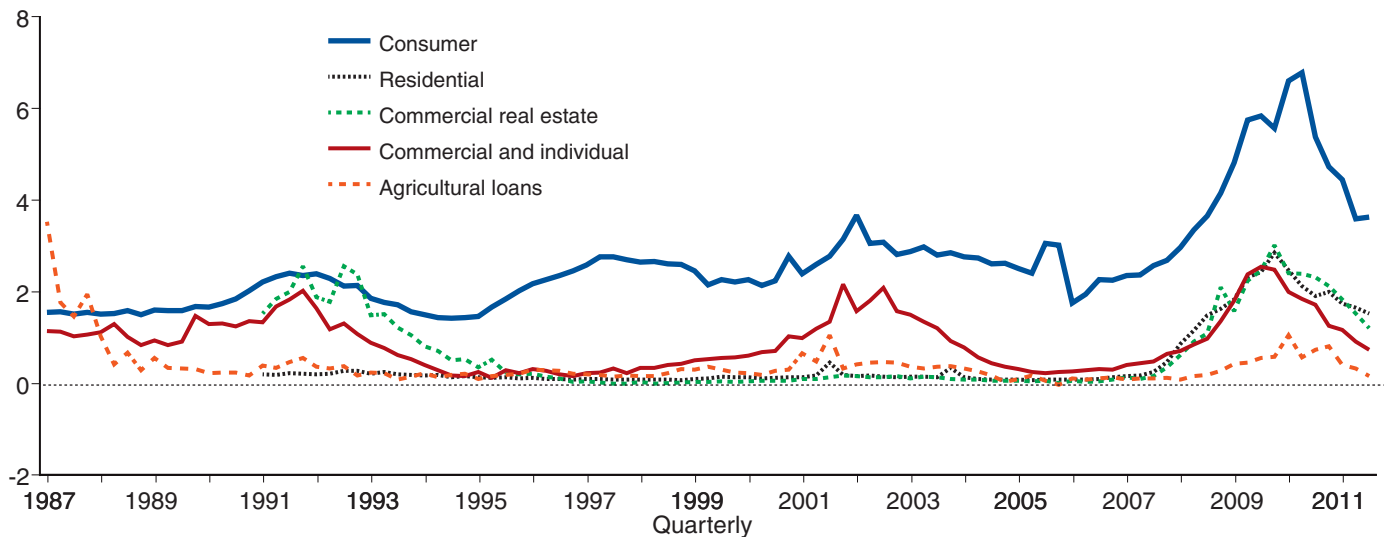
Source: Board of Governors of the Federal Reserve System, 2012b.

Figure 8

### Commercial bank loan charge-off rates

Loan charge-off rates increased significantly but decreasing over time

Percent



Source: Board of Governors of the Federal Reserve System, 2012b.

agricultural sector maintained relatively stronger financial performance as a result of:

- Strong growth in farm income from 2004 to 2008, leading up to the recession;
- Strong growth in farm real estate values;
- Less use of financing in the farm sector; and
- The relative financial health of agriculture's primary lenders.

### Farm Financial Conditions Supported by a Decade of Growth in Farm Income and Farmland Prices

Low delinquency and default rates for farm loans reflected the strength of farm income for most of 2003-07 and its ability to rebound following 2010, allowing farmers to strengthen balance sheets. Net farm income was estimated to increase 28 percent in 2010 and another 24 percent in 2011, improving farmers' ability to cover interest expenses (Park, 2011). Based on current Economic Research Service (ERS) projections, farm income is likely to remain above the 2002-11 average level through 2021 (WAOB, 2012).

The post-2004 period was excellent overall for real farm income (fig. 9). This period of growth allowed farmers to improve their overall liquidity and strengthen their balance sheets. Strong gains in farm income also increased farmland values by raising expectations of future income flows. In addition, unusually low interest rates for qualified borrowers lowered the cost of financing farmland purchases and aided the surge in farmland values. Robust farm income in 2003 and 2008 increased the asset cushion available to ease the problems caused by weaker farm income in 2009. The relatively low use of debt by farmers reduced the percentage of cash flow required for interest

payments and lowered incentives for excessive risk taking.<sup>16</sup> The combination of rising farm income and land values, along with the likelihood of continued low interest rates over the near term, points toward continued low, or even declining, levels of problem loans over the next few years.

<sup>16</sup>The relationship between default risk, cash flow, wealth, and capital structure is discussed in greater detail in chapter 18 of Sinkey (1989) and chapter 15 of Ross et al. (1990).

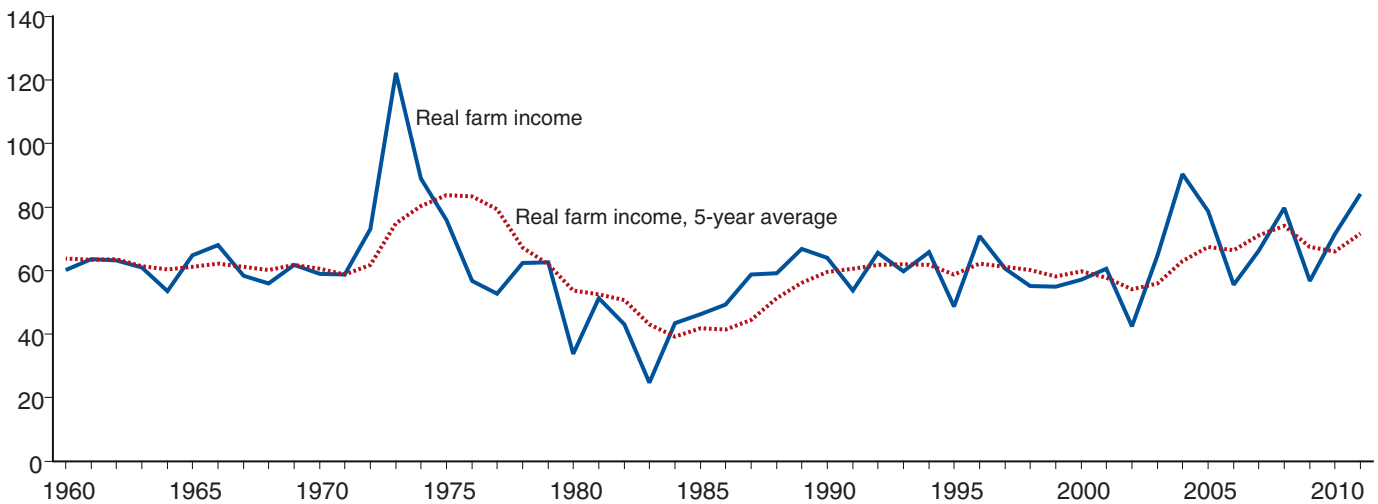
The increase in charge-off rates at commercial banks was generally more pronounced for farm loans not backed by real estate collateral (fig. 10). The growth in farm income in recent years, however, pushed non-real estate charge-off rates below real estate loan charge-off rates. Farm loans backed by real estate are typically better collateralized than non-real estate

Figure 9

**Real farm income**

*Real farm income growth was strong in the mid-2000s through 2008*

Billion dollars (2005)



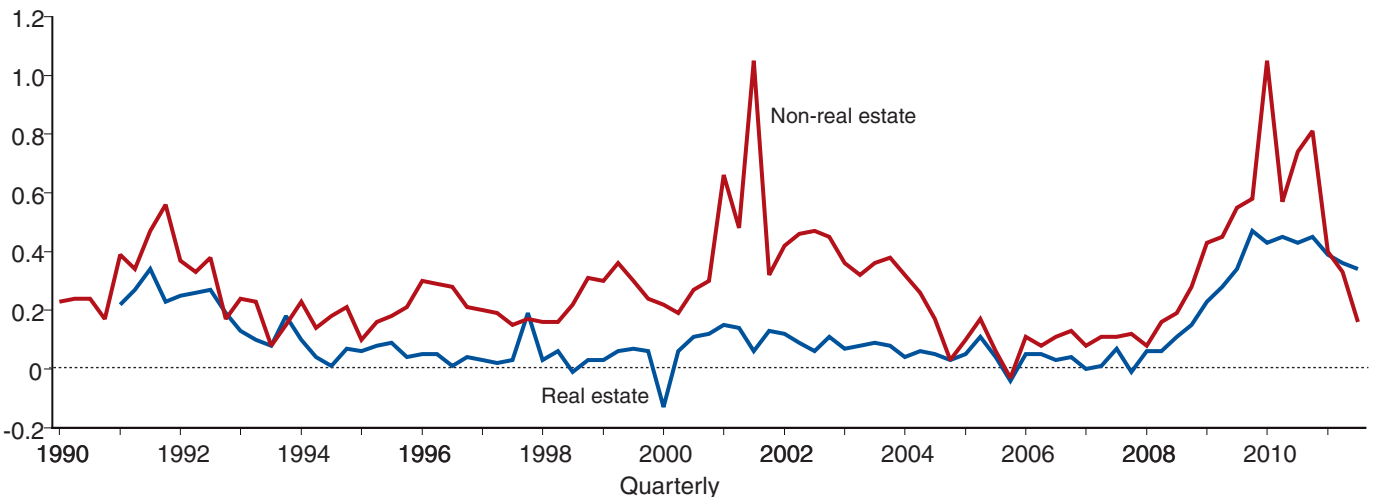
Source: USDA, Economic Research Service, *Farm Income Data Files*, 2012a.

Figure 10

**Charge-off rates for commercial bank real estate and non-real estate farm loans**

*Loan charge-off rates moved up during the crisis but are now moving back down*

Percent



Source: Board of Governors of the Federal Reserve System, 2012b.

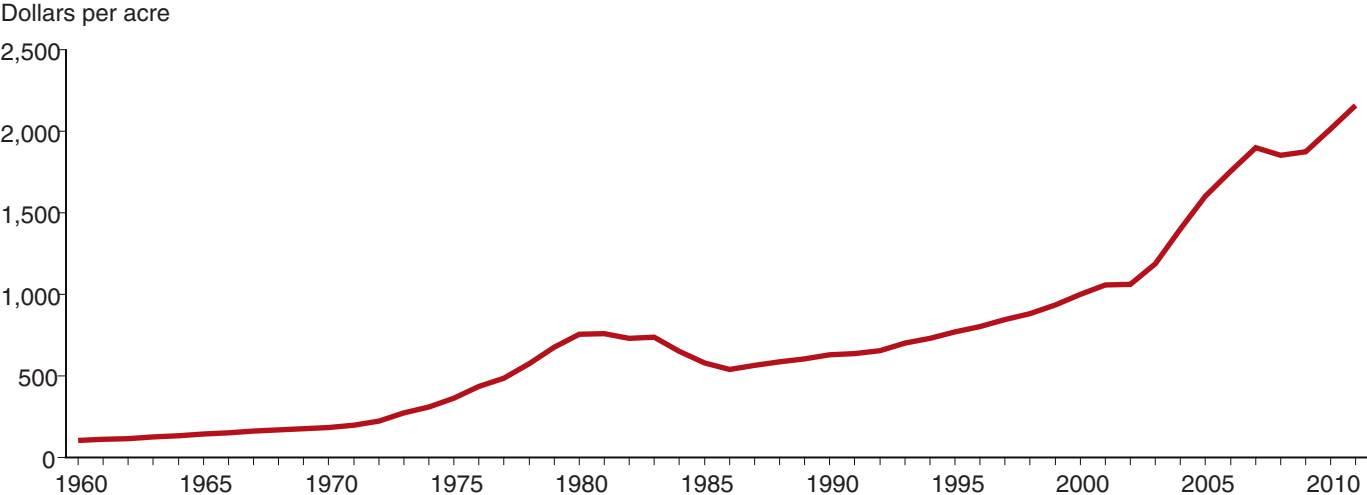
loans. Rising land values were especially important and beneficial for crop producers because loans collateralized by real estate are more prevalent in crop farm loans than livestock farm loans. From 2002 to 2007, farmland and farm building prices increased at over an average 12-percent annual rate, compared with 5.5 percent between 1960 and 2010 (fig. 11). Higher land prices increased the value of farmland used as collateral in agricultural loans, boosting a farmer’s ability to avoid default during 2008-09, as well as the assets available for future borrowing. Farmland prices were estimated to have increased at more than 7 percent for 2010 and 2011, reflecting continued strong gains in farm income and higher prices for agricultural products.

**Farmers Limit Credit Use**

Farm delinquency and charge-off rates are also being held down by agriculture’s low use of debt in their balance sheets. Farmers, by being cautious with debt financing, have avoided most problems caused by heavy reliance on debt, especially in comparison with nonfarm borrowers. Low debt use reduces both variability in net income and incentives for excessive risk taking. Two popular measures of debt usage are the debt-to-asset ratio and the interest coverage ratio. The debt-to-asset ratio measures the percentage of assets financed through debt, while the interest coverage ratio measures the multiple by which interest charges are covered by interest payments and pretax income. These measures are complementary, and their joint usage allows for a better examination of the impact of debt on balance sheets and business cash flows.

The debt-to-asset ratio for farm business has trended lower since the mid-1980s and was far lower than the recent debt-to-asset ratios of corporate and noncorporate nonfarm business (fig. 12). In contrast, debt-to-asset levels for corporate and noncorporate nonfarm business have trended upward since 1960. As the percentage of assets financed through debt increases, borrowers see greater incentive to choose higher-risk ventures with higher-than-expected returns, because a lower percentage of the

Figure 11  
**Farmland value per acre**  
*Farmland values have continued to increase*



Source: USDA, Economic Research Service, *Farm Balance Sheet*, 2012b.

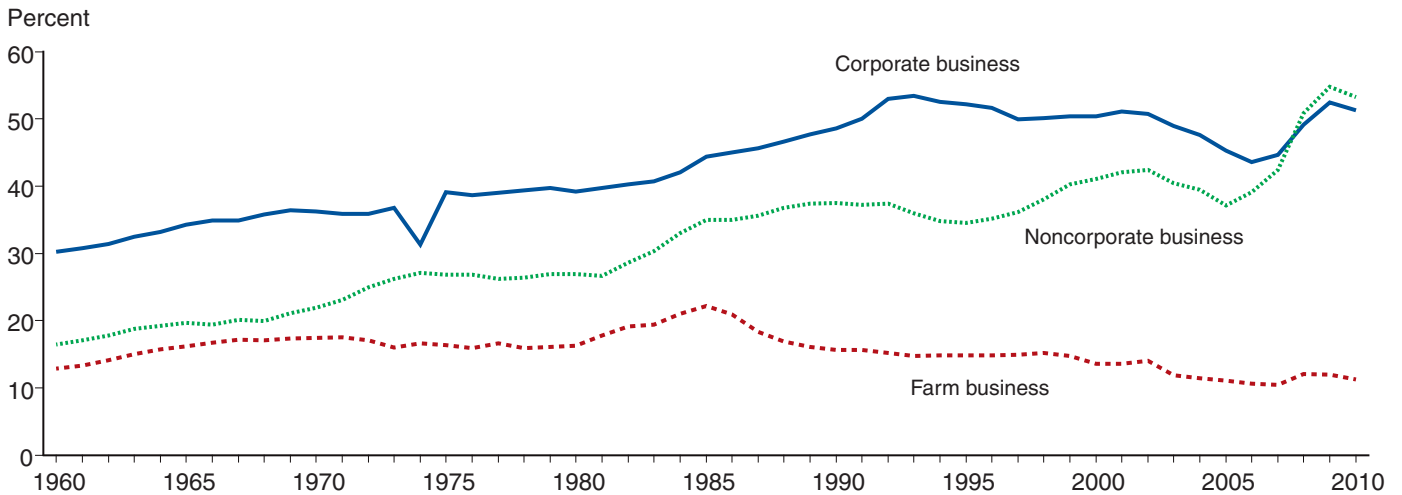
borrower's funds are at risk. Lower use of debt leverage by farms indicates fewer potential conflicts of interest between lenders and farm business owners over risk and asset choices. However, it is the case that since the 1980's farm crisis, minimum down payments of 40 percent or more have been required on farm real estate loans. This is greater than that required for most nonagricultural business loans and has the effect of reducing debt-to-asset ratios for agriculture as well.

Interest coverage ratios illustrate a similar picture of relatively low debt burdens for farmers (fig. 13). Since 1990, interest coverage ratios for

Figure 12

**Debt-to-asset ratios for farm and nonfarm business**

*Farm debt-to-asset ratios are lower than nonfarm business*

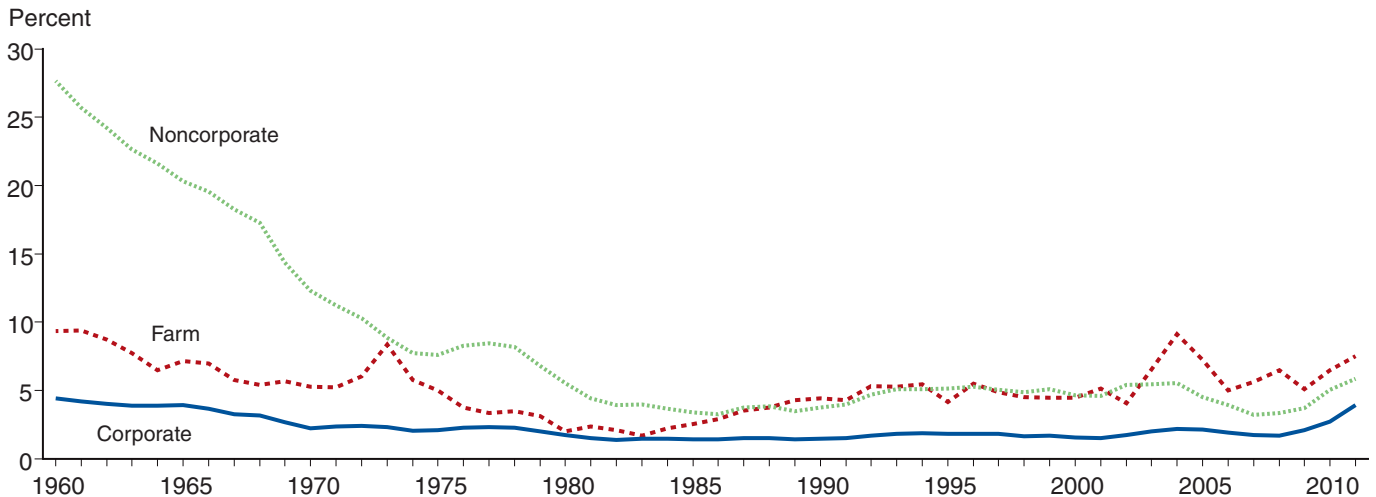


Source: Board of Governors of the Federal Reserve System, 2012a.

Figure 13

**Farm and nonfarm interest coverage ratios**

*Since 2003, farm business have had better interest coverage ratios than nonfarm business<sup>1</sup>*



<sup>1</sup>Interest coverage ratio equals profits before taxes plus interest payments divided by interest payments.

Sources: USDA, Economic Research Service, Farm Income Data Files, 2012a; U.S. Department of Commerce, National Income and Product Accounts data, 2012.



farm business have exceeded those of nonfarm, noncorporate business and corporate business. The relatively low debt use by agriculture reflects the conservative nature of farmers and their primary lenders, which has reduced the sensitivity of returns to agricultural assets and equity to the general business cycle.

Within the farm sector, the use of debt leverage tended to be higher for larger farms, livestock producers, and younger farmers (Harris et al., 2009). These farmers have a greater tendency for liquidity problems in times of weakened cash flow. Overall, no significant increases in farm delinquency and default rates are expected in 2012-13; interest rates are expected to remain low for highly qualified farm borrowers, and farm commodity prices are expected to remain relatively strong (USDA/ERS, 2011). Farmers remained cautious in their use of debt in 2011, as non-real estate farm debt held at commercial banks and the Farm Credit System was roughly unchanged in the first half of 2011 and farm real estate debt grew a modest 2.2 percent over the same period (Federal Reserve Bank of Kansas City, 2011; Farm Credit System, 2011).

### **Relative Health of U.S. Farm Lenders an Asset to Sector**

U.S. agriculture has benefitted from the relative health of its two most important lenders—rural commercial banks and the Farm Credit System. Commercial banks and the Farm Credit System accounted for over 80 percent of farm credit. The relative health of these lenders gave farmers with strong balance sheets and favorable income statements access to credit (Henderson and Akers, 2010).

Commercial agricultural lenders and the Farm Credit System avoided excessive risk in good economic times, thus reducing their losses in difficult times and ensuring continued favorable access to credit for most farm borrowers. During 2007-09, while the return on equity for nonagricultural small banks fell from 7.7 percent to -2.0 percent, the return on equity at agricultural commercial banks fell much more modestly, from 10.6 percent to 7.0 percent (Federal Reserve Bank of Kansas City, 2010). Farm loan volume at commercial banks increased almost 11 percent over this period. The Farm Credit System also performed well relative to the financial industry as a whole—loan volume increased 15.3 percent, net income after loan losses increased 5.4 percent, and the average return on capital fell a modest 0.5 percent (Farm Credit System, 2011).

## Conclusions

The world economic recovery was underway in 2011 and is likely to continue in 2012 and beyond, with developing countries, including those in Asia, Latin America, and Africa, leading the way, while developed countries will recover at a much slower pace.<sup>17</sup> The crisis in the Eurozone continues and is likely to continue for some time, further dampening growth prospects in developed countries (Kelch et al., 2010). Unfortunately, history has shown that recoveries are typically weaker when the preceding recession was deep and produced great financial upheaval. From a trade perspective, agriculture was better positioned than most U.S. industries entering the recession and continues to be during the economic recovery. With most agricultural exports going to developing countries, U.S. agriculture is well positioned to benefit from the continued relatively strong economic growth in developing regions.

U.S. agriculture made it through the recession and uneven economic recovery better than other industries from a financial stress perspective, as well. In addition to its greater dependency upon developing countries for exports, agriculture has benefited from relatively strong balance sheets and a low overall use of debt entering and exiting the recession. Agriculture has also benefited from the health of its two primary lenders—rural commercial banks and the Farm Credit System—which enhanced the farm sector's ability to obtain credit and favorable interest rates to maintain and expand production.

U.S. agriculture is well situated for a period of continued strong growth in exports and farm income. While the world economy is dynamic and increasingly competitive and the outlook for interest rates and exchange rates is always uncertain, U.S. agriculture's natural comparative advantage, low interest rates, increasingly competitive dollar exchange rate, and solid balance sheet suggest that the sector may compete effectively in world markets in the coming years.

<sup>17</sup>The crisis in the Eurozone continues and is likely to continue for some time, further dampening growth prospects in developed countries (Kelch et al., 2010).

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