

# Recognizing Risk in Global Agriculture: A Summary of the 2011 Agricultural Symposium

*By Jason Henderson*

In agriculture, record profits usually are fleeting; farm booms historically are followed by farm busts. The recent rebound in agriculture's profitability combined with projections of burgeoning global demand for food, fiber, and fuel suggest the industry has entered a new "golden era." Still, the glint of banner profits in agriculture could turn out to be fool's gold. While many in agriculture have enjoyed booming profits in recent years, market risks also have soared amid high and volatile commodity prices.

On July 19 and 20, 2011, almost 200 agricultural finance and business leaders examined the threats to agriculture's ability to maintain its recent profitability at the Federal Reserve Bank of Kansas City's symposium, "Recognizing Risk in Global Agriculture." The symposium in Kansas City began with a discussion of the risks agriculture faces in regard to food and fuel. Participants then explored the financial health of the agricultural sector and its ability to weather unexpected downturns in profits. Finally, the discussion addressed how agriculture was managing risks in a profitable, but highly volatile environment. Despite elevated risks, participants were cautiously optimistic that

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agriculture can avoid the history of past farm busts by applying the lessons learned from past boom/bust cycles.

## **I. BALANCING GLOBAL FOOD CONSUMPTION AND PRODUCTION**

Food remains the fundamental product of agriculture. With global populations and incomes on the rise, the sharp increase in global food demand has helped spark bigger profits for agriculture. Yet, new technologies could intensify the competition in agricultural markets and rebalance global food consumption and production.

In recent years, expanding appetites for food have strained global supplies. As noted by U.S. Senator Pat Roberts of Kansas in a video welcome, agriculture's greatest challenge is the ability to produce the food necessary to satisfy global needs. In discussing this challenge, Joseph Glauber, chief economist at the U.S. Department of Agriculture, described how rising food demand in emerging nations has transformed global agricultural trade. In particular, China now is the leading destination for U.S. agricultural goods. Unlike the nation's other major trade partners, China purchases more bulk grains for livestock feed than processed foods.

While China presents opportunities, Glauber and other conference speakers also identified China as a primary demand risk for U.S. agriculture. Though rising incomes are expected to drive further expansions in Chinese markets, disruptions from either a slower economy or trade restrictions are a perennial risk to U.S. agricultural exports to China. The expansion of China's middle class also could shift the composition of U.S. exports away from bulk commodities for livestock feed toward consumer food products.

In addition to demand-side risks, future U.S. agricultural profits could retreat in the face of global food production. In agriculture, the best cure for high prices is high prices. Farmers quickly respond to rising prices by boosting production, which then trims future prices and profits. Glauber noted that by adopting new technologies and agronomic practices, nations in other areas, such as South America, Eastern Europe, Asia, and Australia, are enhancing their production capabilities, and challenging the competitiveness of U.S. agriculture. The adoption of advanced agricultural technology through plant breeding,

enhanced agronomic practices, and new biological traits promises to boost global agricultural production. David Fischhoff, vice president of Technology, Strategy, and Development at Monsanto, suggested that crop yields could double by 2030 and satiate global food appetites.

Yet to achieve these yield potentials, Fischhoff said additional action is required, including a strong partnership of researchers in the private and public sectors. He also said additional private and public sector investments are needed to develop the location-specific technologies essential for satisfying the increasingly diverse palates of global consumers. In addition, strong protection of intellectual property rights is required to disseminate technology, while an equally robust science-based regulatory system is needed to evaluate, assess, and approve new biotech traits.

After echoing support for new private/public sector investments and partnerships, Mike Baroni, vice president of economic policy at Archer Daniels Midland, said additional investments are needed in public infrastructure of developed and developing countries. Across the globe, infrastructure investments in roads, railways, waterways, bridges, ports, and storage capacity are needed to link growers to global consumers and avoid waste. In 2007, for example, as much as 30 million tons of corn, 20 million tons of wheat, and 3 million tons of soybeans were lost globally after harvest from causes ranging from bad storage to weather contamination, as well as the lack of market access.

Baroni noted that a market environment conducive to agricultural development is central to balancing global food consumption and production. Clear price signals are needed to guide investment and growth and to help market participants manage risk. Baroni said regulatory changes in response to price volatility sometimes can exacerbate already challenging market conditions. Public policy could facilitate the flow of food from where it is grown to where it is needed, while export bans, import tariffs, and other types of trade restrictions likely would sharply limit the flow of agricultural products, even to those who need them most.

## II. OVERHAULING RENEWABLE ENERGY MARKETS

Over the past decade, fuel has evolved into another key agricultural product. By using more than a third of the U.S. corn crop, ethanol has transformed agricultural markets and boosted the price of U.S. crops.

Yet, higher energy prices and rising food costs have triggered questions about the economic and political viability of current biofuels policies.

Public policy has been the foundation of the rapidly expanding ethanol industry. The Renewable Fuel Standard of 2007 mandated the increased use of ethanol from 9 billion gallons in 2008 to 15 billion gallons by 2015. Bruce Babcock, director for the Center for Agricultural and Rural Development at Iowa State University, explained how mandates created the market for biofuels production and how tax credits helped fuel blenders pay for it. With the blenders' credit set to expire at the end of 2011, Babcock evaluated the economic implications of public policies on the ethanol and biodiesel industry.

Today's ethanol industry has become more market-based. In 2011, higher crude oil prices and the rising cost of Brazilian ethanol boosted ethanol profits. U.S. ethanol producers responded by increasing production above mandated levels. If crude oil prices reached above \$100 per barrel, ethanol would be market competitive with traditional fuels and the elimination of policy support would have minimal impact on ethanol production, ethanol prices, and corn prices. However, with crude oil prices below \$100 per barrel, Babcock showed that the elimination of the mandate or tax credits would slash the profitability of ethanol production and result in lower corn prices. Concerns about ethanol policy tend to ebb and flow with ethanol's profitability.

The prospects of keeping the ethanol mandate, subsidy, and tariff have also shifted with the political winds. Robert McNally, principal at the Rapidan Group, described how the political support for ethanol policy has shifted over time. Prior to 2008, ethanol had received substantial political support among those who identified it as a way to lessen U.S. dependence on foreign oil and reduce carbon monoxide emissions and ground water contamination.

Since then, however, political support has waned. The 2008 surge in commodity prices sparked a debate about whether crops are best used for food or fuel. In 2009, the once-strong alliance of the ethanol community and environmentalists frayed as questions emerged about fossil fuel consumption, land-use impacts, and life-cycle carbon emissions associated with higher ethanol blending. Yet, the alliance held until cap and trade legislation was removed from the political discussion, breaking the final link binding environmental and ethanol groups.

Today, fiscal constraints in the United States raise additional concerns that ethanol policies are too expensive. Subsidies for biodiesel and wind energy face similar skepticism.

With the political debate over ethanol policy heating up, other policy questions were discussed by conference participants. Babcock raised questions about the cost of using ethanol to satisfy nonmarket objectives such as the reduction of greenhouse gas emissions, air pollution, and the U.S. dependence on foreign fuel sources. In fact, Babcock noted that the lowest-cost option for meeting these nonmarket objectives might be taxing carbon or gasoline. Moreover, given current U.S. fuel consumption, the current ethanol mandate of 15 billion gallons may be too large. Unless additional investments are made in blending infrastructure, particularly flex-fuel cars and blender pumps, ethanol may face a “blend wall,” where gasoline consumption may not need the mandated amount of ethanol. In addition, other technologies, such as drop-in fuels and biobutanol, which use existing blending infrastructure, may provide an attractive alternative to ethanol. Symposium participants noted that the next round of investments could lock the United States into a path of no return for alternative fuels. As a result, policymakers will need to decide whether ethanol is the alternative fuel source for the future.

### III. WEATHERING UNEXPECTED STORMS

Given the emerging risks from food and fuel markets, the symposium next explored the ability of U.S. agriculture to weather unexpected downturns in profits. In recent years, volatility has been a defining characteristic of agricultural markets. Still, despite the increased volatility in commodity prices and resulting fluctuations in agricultural profits and net farm income, agriculture remains on solid financial footing.

In assessing the financial health of agriculture, Paul Ellinger, professor at the University of Illinois, showed that agriculture has used the elevated but volatile profits to strengthen the farm balance sheet. The farm sector’s debt-to-asset ratio has fallen to record lows, and the debt coverage ratio remains historically strong. In fact, Ellinger’s analysis suggests a few pockets of the U.S. farm sector—young farmers, large farmers, and livestock producers—would be vulnerable to significant financial stress if farm income and farmland values fell 20 percent to

30 percent. Volatile markets, however, have caused annual net farm incomes to drop more than 25 percent in three of the past 10 years.

Agricultural lenders echoed Ellinger's remarks, noting that their borrowers are enjoying healthy farm finances. Douglas Hofbaur, president and CEO of Frontier Farm Credit, reported that his customers have strong financial balance sheets with high debt-coverage ratios and low loan-to-value ratios on real estate. Jeffrey Gerhardt, president and CEO of the Bank of Newman Grove, expressed similar sentiments. Today, most farmers have historically low leverage ratios, despite higher production costs.

Given the strength of farm profits, agricultural lending institutions also remain financially healthy with strong capital positions. Commercial banks and the Farm Credit System hold the vast majority of farm debt. Despite rising during the recent recession, delinquency rates on agricultural loans remain well below the delinquency rates on other types of loans—including residential mortgages, commercial real estate, and C&I loans. Ellinger showed that many of the problem loans for both commercial banks and Farm Credit Associations are regionally concentrated in the South, specifically Florida, Georgia, or Texas.

Even with healthy balance sheets, agricultural borrowers and lenders have enhanced their risk management techniques. Agricultural borrowers have increased the sophistication of their operations, enhancing their risk management skills in addition to their marketing and financial management skills. Agricultural lenders also have strengthened their lending procedures by focusing more on the repayment capacity of the borrower than collateral when making a farm loan and by conducting more stress testing of farm loan portfolios. Although farm income declines of between 30 percent and 50 percent would cause stress among farm borrowers, most farmers have strengthened their working capital and possess a large collateral base to restructure debt, if needed.

With the strong financial health of agriculture, participants noted the intense competition in agricultural financing. In recent years, the bullish opportunities in agriculture arising from larger global populations and economic development in emerging countries have rekindled the interest of investment companies in agriculture. Ejnar Knudsen, portfolio manager from Passport Capital, described how investment

companies are searching for ways to control resources and scanning for slow-moving trends that are not priced in the market.

At the same time, the financial crisis has sparked a focus on how companies can protect themselves and even profit from black swan events, which, though unlikely to occur, have large impacts on economic conditions when they do happen. Knudsen suggested that companies are better positioned to deal with black swan events if they learn to expect the unexpected. This process begins by asking “what if” questions. What if the ethanol mandate disappears? What if the value of the dollar and interest rates rise? What if weather patterns shift?

Conference participants suggested that prosperous times were the ideal time to prepare for “what if” scenarios. In Knudsen’s view, agriculture appears to be at the same stage of opportunity as the mid-1970s, when farm incomes were strong, opportunities were abundant, and leverage ratios were low. During the late 1970s, however, agriculture used low interest rates to leverage farming operations and businesses to the point that, when opportunities soured in the 1980s, many in agriculture were not able to withstand the storm.

All speakers agreed agriculture had learned many valuable lessons from its own black swan event three decades ago. The most important principle learned was that working capital is the best hedge against the possibility of extremely bad events in agriculture. Gerhardt noted that, to maintain adequate working capital, *all* agricultural financiers and their regulators must work together to maintain agriculture’s financial health during unexpected downturns.

#### **IV. MANAGING AGRICULTURAL RISK**

While conference participants acknowledged the importance of recognizing risk, the next consideration was how agriculture is actually managing risk. In general, agriculture has several tools available to manage risk, including public policy, insurance, and hedging in futures markets. The ability and willingness of farmers, agribusiness managers, and financiers to use these methods are essential to their effectiveness.

Since the 1980s, farmers’ risk management toolbox has expanded beyond increasing working capital. In the United States, the federal government has promoted several innovations in risk management through the support and subsidizing of crop and livestock insurance programs

that protect against production, price, and/or revenue risk. In addition, farmers, who are naturally long on grain and short on inputs, are focusing on margin management. They are using hedge-to-arrive (HTA) contracts, futures accounts, or over-the-counter (OTC) swaps to manage margins.

While farmers are increasingly enhancing their abilities to use these tools, Michael Swanson, chief agricultural economist at Wells Fargo, described how attitudes shape the use of risk management techniques. Managing risk includes the willingness to give up some upside potential to protect against downside risk. As Swanson noted, the desire to win bragging rights for selling crops at the highest price can reinforce poor risk management.

Swanson identified two styles of risk management. Some farmers say they can earn a better financial return by managing risk the traditional way—by maintaining large reserves of working capital. While working capital protects against market downturns, excessive levels of working capital starve the farming operation of investments needed to grow and expand.

Another group of farmers, who tend to be younger or operate larger enterprises, says larger financial returns can be earned by trading away some risk. Still, Swanson finds that these producers focus on managing profit margins instead of managing market gains. For example, many farmers may use futures markets and other types of derivative contracts to hedge the risk on revenues or costs. They tend to operate more acres with the same amount of working capital. While a well-executed strategy that manages margins can reduce the range of bad and good outcomes, the failure to effectively match production costs with revenues is actually speculation, not hedging.

The market environment shapes the effectiveness of either strategy. As Swanson noted, traditional managers were more successful during the 1990s when commodity markets were less volatile, reducing the need for working capital. During less volatile periods, traditional managers, who manage risk by boosting working capital, have lower risk management costs. Margin managers, however, have been more successful during the past five years when prices were volatile. In volatile periods, margin managers, who use hedging arrangements to manage risk, do not have higher costs associated with raising additional working capital.



In addition to market volatility, government policies also drive risk management techniques. Current debates surrounding the 2012 farm bill and fiscal constraints raise questions about the support for publicly funded agricultural risk management strategies, such as government farm subsidy programs, crop insurance subsidies, and government farm loan programs. In addition, U.S. government subsidy programs have been challenged by the World Trade Organization. Specifically, the Brazilian challenge of direct payments to U.S. cotton producers could alter U.S. farm policy. As a result, many agricultural participants are looking at publicly subsidized crop insurance as the primary risk management tool to protect against production and price risk in the future.

In some regions, such as California, risk management tools can be limited. Curt Covington, senior vice president at Bank of the West, noted that futures markets and crop insurance programs are underdeveloped or nonexistent for many specialty crops, limiting risk management tools. In addition, risk management tools are not particularly effective in managing policy-based risks surrounding irrigation and immigration. As a result, lenders in these markets require higher levels of working capital, increased use of covenants, and enhanced oversight to manage risk. Producers also have increased the use of contracting relationships or partnerships with retailers to reduce market risks. Yet, vertical integration of the agricultural supply chain presents its own set of risks, particularly for the minority partner, as retailers can drive agricultural production practices, especially if they are a monopsony or account for a large concentration of sales.

In New Zealand, a nation that has dismantled government farm programs, risk management is focused less on hedging strategies and more on governance. Richard Bowman, head of agribusiness at the Bank of New Zealand, described how strong governance is a prerequisite of any risk management strategy. The ability of business management and ownership to clearly identify risks and develop plans and operating procedures in preparation for unexpected events is critical. Combined with a strong and independent board of directors, abundant working capital, strong management skills, and preparation for unexpected events are the cornerstones of successful risk management strategies. Since dismantling agricultural subsidies two decades ago, Bowman noted that international competition has forced New Zealand producers to hone their general business and risk management skills.

## V. ASSESSING AGRICULTURE'S FUTURE

A closing panel provided a final glimpse of the risks agriculture could face. Due to its large and increasingly wealthy population, Bruce Babcock felt that China was a fundamental risk, on both the upside and downside. While stronger economic growth in China has the potential to fuel additional surges in commodity prices, sluggishness in the Chinese economy could taper agricultural demand and prices. Paul Ellinger agreed with the importance of China and also said inflation, interest rates, and exchange rates would drive future shifts in commodity prices and agricultural profits. Michael Swanson highlighted agriculture's policy risks, which include energy, farm, regulatory, and trade policies, and how government policies will continue to challenge agriculture on a global basis. All panelists noted that volatility will be a defining characteristic of agriculture and a risk to farm profitability for the foreseeable future. The development of a just-in-time inventory system for agricultural commodities creates the conditions for highly volatile prices, especially during times of unusual weather patterns.

As the symposium concluded, there was a consensus that the next few years will be crucial to the future structure of agriculture. Similar to the mid-1970s, booming farm incomes and land values, driven by low leverage and increased food demand from a larger, wealthier global population, make agriculture an attractive investment opportunity. Will agricultural history repeat itself and spark debt accumulation similar to the late-1970s? Or, has agriculture learned the lessons of the recent financial crisis and its own debt crisis in the 1980s? As Swanson said, "Why won't agriculture repeat what we had in the 1980s? It is exactly because we are sitting in this room today talking about it and anticipating it." Recognizing risk in global agriculture is the first of many steps in building sustainable profits in agriculture and forestalling future farm busts.