

Pursuing the global opportunity in food and agribusiness

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Pursuing the global opportunity in food and agribusiness

Satisfying the world's food needs opens the door to investment throughout the value chain.

Food and agribusiness have a massive economic, social, and environmental footprint—the \$5 trillion industry represents 10 percent of global consumer spending, 40 percent of employment, and 30 percent of greenhouse-gas emissions. Although sizable productivity improvements over the past 50 years have enabled an abundant food supply in many parts of the world, feeding the global population has reemerged as a critical issue. If current trends continue, by 2050, caloric demand will increase by 70 percent, and crop demand for human consumption and animal feed will increase by at least 100 percent. At the same time, more resource constraints will emerge: for example, 40 percent of water demand in 2030 is unlikely to be met. Already, more than 20 percent of arable land is degraded.¹ Moreover, food and energy production are competing, as corn and sugar are increasingly important for both. Such resource scarcity could lead to political unrest on a large scale if left unaddressed. Agricultural technologies that raise productivity even in difficult conditions and the addition of land for cultivation in Africa, Eastern Europe, and South America may ease the burden, but meeting the entire demand will require disruption of the current trend.

Sensing an opportunity, strategic and financial investors are racing to capture value from technological innovation and discontinuities in food and agriculture. Since 2004, global investments in the food-and-agribusiness sector have grown threefold, to more than \$100 billion in 2013, according to McKinsey analysis. Food-and-agribusiness companies on average have demonstrated higher total returns to shareholders (TRS) than many other sectors: the TRS of more than 100 publicly traded food-and-agribusiness companies around the world increased an average of 17 percent annually between 2004 and 2013, compared with 13 percent for energy and 10 percent for information technology.

However, finding the right investment opportunity is not easy. Food-and-agribusiness investing requires a deep understanding of specific crops, geographies, and complex value chains that encompass seeds and other inputs, production, processing, and retailing. Many of the relevant investment opportunities are in geographies unfamiliar to some investors, and their profitability rests not only on crop yields but also on how different parts of the value chain perform (Exhibit 1). In this article, we examine the main trends that will likely influence the future of food and agribusiness, identify promising investment opportunities, and offer a view of how players might successfully pursue them.

Major trends in food and agribusiness

The food-and-agribusiness value chain comprises a wide range of companies, from suppliers of agricultural machinery, seeds, chemicals, animal-health tests and vaccines, and packaged foods to data providers for precision agriculture.² Filling the global gap between supply and demand requires more resources—technical, human, and financial—for the majority of these companies. Investors have a critical role to play in meeting this challenge—and opportunities to benefit.

To identify attractive opportunities across geography, crops, and parts of the value chain, we first analyzed seven trends that will likely influence food and agribusiness economics over the next decade.

Population growth, urbanization, and increased income in emerging markets

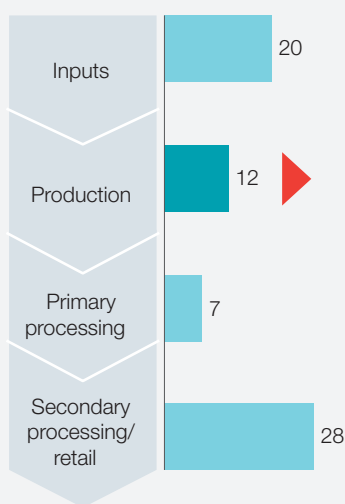
By 2020, more than half of global GDP growth is expected to come from countries outside of the Organisation for Economic Co-operation and Development; over half the world's urban population also will be in emerging economies. Not only is demand for food in emerging markets expected to rise dramatically because of population and income growth, but also these regions are likely to adopt a rich-country diet—more calories, protein, and processed foods.

Exhibit 1 Growth rate and value can differ significantly by the role in the value chain, crop, and geography.

Parts of the value chain

Profitability differs significantly by role in value chain

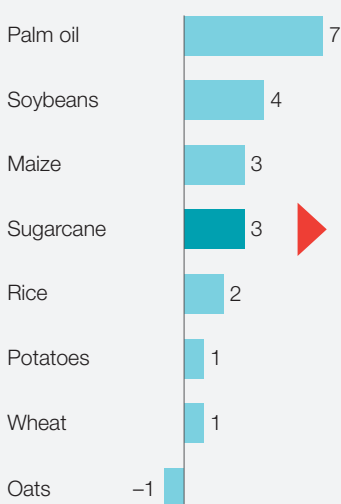
Average return on invested capital, 2010–14, %



Crops

Global growth rates vary widely depending on the crop

Annual growth rate of total production, 2000–13, %¹



Geography

Global growth rates vary widely across countries for same crop

Annual growth rate of sugar cane production, 2000–13, %¹



¹Utilized 3-year averages.
Source: FAOStat; McKinsey analysis

A projected surge in demand for protein in emerging markets, especially pork in China, would create opportunities for companies to grow in core production and supporting industries such as breeding, animal-health testing, feed, and vaccines. For example, beef and other livestock production in Argentina and Brazil is expected to grow strongly to meet global demand. Making feed conversion more efficient so that animals produce more meat while consuming the same amount of feed as they do now could be profitable for companies with unique intellectual property in additives such as probiotics, enzymes, and acidifiers.

With opportunity come risks. Rising protein prices in emerging markets, government intervention, and environmental concerns could slow demand. Moreover, not every part of the protein value chain is doing well; livestock producers are struggling

because of a poor feed-to-meat/dairy price ratio, and primary processors are suffering from high feedstock costs and low capacity utilization. Also, consumer behavior and preferences can change faster than many companies and investors can handle. Successful investment strategies will address the risks by finding opportunities to capture value (for example, technology or processing that improves feed performance or reduces feed-production cost) or by mitigating the risks (for example, vertical integration within the protein value chain).

Demographic and behavioral change in mature markets

In addition to greater demand for protein, we anticipate a trend toward healthier diets. Consumers are increasingly health conscious and place greater importance on environmental sustainability, most

visibly in developed countries but more and more in emerging markets. In response, governments are tightening standards for food production. As a result, demand is rising for healthier functional foods (those that offer benefits beyond basic nutrition, such as lowering cholesterol) and for traceable and certified foods that are guaranteed to meet a certain level of safety and environmental or corporate social responsibility.

Producers and food companies that embrace more stringent environmental and social standards, organic-certification requirements, and traceability standards should be able to better position themselves in the face of evolving regulation and continue to grow to take advantage of this trend. For example, in 2010 Unilever announced plans to source 100 percent of its agricultural raw materials sustainably by 2020, and, as of the end of 2014, had reached 55 percent. Food-and-beverage companies can also profit from products with specific fortifications and nutrients to appeal to the health-conscious segment (for example, omega-3-fortified milk).

The productivity imperative

Depletion of natural resources, the impact of climate volatility on crops, and declining productivity gains in agriculture are expected to hinder growth in the world food supply, forcing countries to produce more with less. By 2030, for example, the gap between expected water withdrawals and existing supply may reach 40 percent. The pressure on water, land, energy, and labor resources will necessitate innovation to enhance agriculture productivity. Indeed, productivity gains have slowed in recent years; productivity of major crop yields is now growing by only 1 percent a year compared with twice that rate in the 1960s and 1970s. This has big implications: a 2 percent increase in wheat yields would generate enough calories (about 150 kilocalories per day) to give an extra piece of bread to the nearly 900 million people living in the least-developed countries.

To take advantage of the need for higher productivity, input companies, distributors, and logistics enterprises can expand into new geographies as well as provide a wider range of

products and services (for example, high-yield seeds, fertilizer, and resource-optimization techniques) to help farmers increase crop yields. Offering innovative technologies (for example, seeds requiring less water for similar yields) is important, but so is their distribution in emerging markets.

The other way to get more from less is to reduce food waste. An estimated 30 percent of agricultural production in Africa and Asia is lost in postharvest processes. Accurate data on waste are difficult to come by, especially in emerging markets, but we know that logistics, trade, and processing infrastructure are critical bottlenecks. In developed markets, most food waste happens downstream, at the retailer or in consumers' homes, resulting also in around 30 percent consumption loss. Economics drive waste: margins and transport costs determine how much effort to put into waste reduction while consumer behavior is slow to change.

Reducing food waste in emerging markets is a big value-creating investment opportunity, particularly in logistics and distribution. In China alone, the cold-storage-and-transportation market generates \$12 billion to \$18 billion in revenues and is expected to grow 10 to 15 percent annually to meet the country's expanding meat, dairy, and vegetable demand. Some local companies are already seeking capital to promote this growth. In developed markets, there are opportunities for innovation in extending food shelf life and in packaging to reduce waste downstream.

A polarized industry structure: Toward bigger and smaller

We anticipate continued consolidation of firms across the agribusiness value chain as well as the emergence of smaller niche players. Large-scale commercial farming has taken off in places such as Brazil, where commercial farms can top 100,000 acres. In addition, smaller- and medium-size family farms are increasing their purchasing (for example, seeds, crop protection, fertilizer, and machinery) and selling grains, sugar, and ethanol through cooperatives, lowering transaction costs significantly. There is also emerging interest in Africa as a production basin: major agribusiness

companies are increasingly integrating vertically as more traders extend into production and processing, while retailers are moving into production and sourcing of key input commodities.

At the same time, there are rising numbers of specialized players, especially on the input side, where technology and intellectual property play a critical role. Small microbial-fertilizer companies are an example. In addition, the millions of smallholder farmers around the world are gradually integrating into commercial value chains; among them are coffee farmers in Ghana and cotton farmers in India.

Consolidated, integrated farming creates an opportunity for equipment manufacturers, distributors, and technology companies to offer more sophisticated and automated products and services. Smaller, specialized players could grow and perhaps wind up in the hands of strategic investors (as, for example, in BASF's 2012 acquisition of Becker Underwood, a seed-treatment technology company).

Unprecedented price swings

We expect continued volatility in agricultural input and output prices. Wider swings in agricultural prices in recent years are similar to what happened with other commodities, such as oil and metal. In addition, there is increasing evidence of tighter linkages among commodity prices. With the spike in food prices and the economic downturn in 2008, the number of undernourished people around the world increased to more than 1 billion, from 850 million in 2005. Food-price peaks in 2011 and 2013 had a similar though less severe effect, while we are seeing a continuous price decline over the past 12 months.

The politics and technology advancements of biofuels will be an important factor in price levels and volatility. Meanwhile, other contributing factors to volatility—adverse weather, rising oil prices, export restrictions, civil strife—will most likely persist. Risk management and hedging mechanisms such as weather insurance will therefore be an important component of doing business in parts of the food-and-agribusiness value chain.

Big data and information

Expanded access to and more sophisticated use of information will play an increasingly important role in agriculture. There is exciting potential to use more granular data (for example, data for every ten-meter-by-ten-meter square of a field) and analytical capability to integrate various sources of information (such as weather, soil, and market prices) with the goal of increasing crop yield and optimizing resource usage, thus lowering cost.

In our view, however, there is still significant progress to be made on figuring out a business model that captures value from data at scale. In part, that is because the data are captured by disparate players in different parts of the value chain (for example, seed companies, equipment manufacturers, traders, and software developers). Managing and capitalizing on the critical data points is likely to require strategic partnerships and acquisitions, and potentially a reshaping of the industry structure. Monsanto's \$930 million acquisition of The Climate Corporation in 2013 was one of several moves by an agriculture giant; other companies, like Deere & Company, have announced partnerships on data with input firms. More opportunities could arise in adjacent areas once integrated, comprehensive data become available.

Meanwhile, emerging markets still lack high-quality, reliable data on production and demand. Establishing a systematic mechanism to capture the data could offer additional value-creating opportunities. In particular, rapid expansion of mobile technologies in rural populations could allow farmers in these areas to greatly improve productivity based on access to better information.

Trade to contribute to food security

Agricultural trade is growing, but protectionism remains a concern for many stakeholders. Indeed, only a modest percentage of global agriculture production is traded across borders, but such exports can influence world market prices and regulation. Agriculture continues to play an important social and political role. Economics often takes a back seat to low food prices, food availability, rural employment, and slowing urban migration.

However, there are still investment opportunities for low-cost producers in countries such as Brazil, where agricultural exports continue to grow. In addition, investments in infrastructure that enables the movement of commodities, such as ports, storage, and the cold chain, can help to promote and capture more value from agricultural trade. Major agricultural traders such as Archer Daniels Midland, Bunge, Cargill, and Louis Dreyfus have committed capital to relieving some important bottlenecks such as movement of product from Brazil's interior, and we expect additional investment will follow.

Potential opportunities for investors

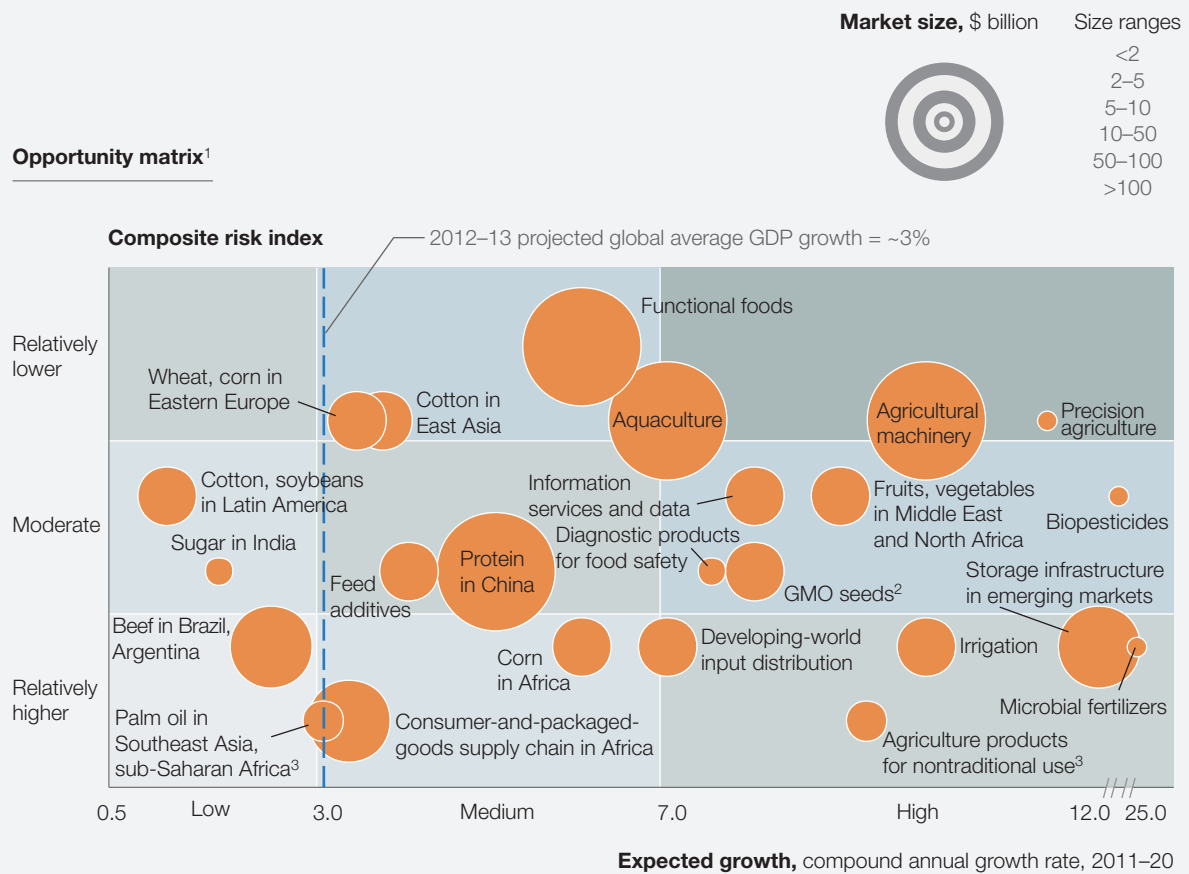
Based on these trends, we identified 24 hot spots that may prove attractive to investors over the next decade and assessed these opportunities on market size, risk, and growth potential (Exhibit 2).

Let's look more closely at one of the hot spots:

Protein in China

With annual spending of \$300 billion, China is the world's largest consumer of meat, two-thirds of which is pork. Protein consumption there is

Exhibit 2 We have identified 24 hot spots where agribusiness investment is likely to focus.



¹Growth segments (horizontal axis) are low, <3%; medium, 3-7%; high, >7%. Risk (vertical axis) is measured as the sum of scores across 4 types of risk assessed: execution, geopolitical, regulatory and market, and technological.

²Genetically modified organism (GMO) seeds have high regulatory risk in some regions and high acceptance in others (eg, North America). Palm oil has higher risk in sub-Saharan Africa, where most growth will come.

³Agriculture products used for construction and pharmaceuticals (not cotton, energy, food, tobacco, or wood).

Source: *Ag2020: Growth and investment opportunities in food and agribusiness*, a joint report from McKinsey and Paine + Partners, 2013

expected to grow 3 to 4 percent a year, mostly as a result of increasing demand from a rising middle class. While levels have risen dramatically, the Chinese continue to trail Western diets in protein consumption. The government has made a strong commitment to modernize the sector, moving from what is largely backyard farming to sophisticated commercial agribusiness. These structural changes and discontinuities make the sector a hot spot worthy of further exploration.

However, the space is vast and complicated, with multiple areas to examine and prioritize across products (pork, poultry, dairy, beef, and fishery), value chain (inputs, production, and processing), and cross-cutting themes such as infrastructure. After we assessed major trends, industry structure, and investment opportunities, two areas emerged as attractive possibilities: pork breeding and cold-chain logistics.

China's pig-breeding market is substantial, with about \$1 billion in annual revenue and favorable economics. Breeding is one of the critical means to modernize the protein industry. Technology and intellectual property inherent in the genetic research allow companies to capture significant margin. Investors must identify international players that are well positioned with reliable Chinese partners. It is critical to offer a compelling value proposition to the Chinese government that combines contributing to local production and productivity improvements as well as offering food security solutions, including direct supply chains into China. Meanwhile, Chinese companies are not standing still: Shuanghui International Holdings, China's biggest pork producer, completed the \$4.7 billion acquisition of Smithfield Foods, the 87-year-old US meat giant, with brands like Armour and Farmland, in September 2013.

On the back of the increased protein demand and formalization of the Chinese food system, there is a big investment opportunity in developing the cold chain in the Chinese food industry, given increasing consumer and government expectations for food quality and safety. To reach developed-market scale in both cold storage and transportation, the Chinese

cold-chain logistics market would have to grow more than 20 percent a year for the next five to ten years. Annual growth rates of more than 15 percent are required to reach government targets for cold-chain penetration of agriculture products. Analysts forecast the global cold-chain market to grow at 16 percent annually to 2018. The current industry is fragmented at the local and regional levels, suggesting that more consolidation and vertical integration can be expected. Given the capital intensity of the sector, the opportunity for investors may lie in acquiring an international player that is well positioned in warehouse-logistics management (where the margins are highest) and has the right customer relationships and local partners.

Making it happen

Simply identifying potential hot spots will not guarantee success. Winning will require a thoughtful approach and sector-specific capabilities. To create and capture value in food and agribusiness, investors should consider the following moves:

- **Deepen value-chain understanding.** Investors should develop a granular understanding of each step of the value chain and identify where opportunities may lie, since variations across each sector are significant. For example, sugarcane production value grew almost 80 percent in China and 120 percent in Brazil from 2000 to 2012 (although in the last three years, the market has become much tougher for Brazilian sugarcane players), compared with a 23 percent decline in the United States during that same time period. Investors should be selective—food and agribusiness often comprise a small number of large companies (especially inputs and primary commodity processing), businesses that are part of a large conglomerates, and many small farmers and businesses. Increasingly, there are firms specializing in the food-and-agribusiness sector that are attractive to investors because of their strong understanding of the sector.
- **Recognize the importance of emerging markets.** Strengthening activities in emerging markets will be essential, as much of the growth in supply and demand will come from there.

Investors must build relationships and capabilities and be willing to manage social and political uncertainty. For example, we have seen investors struggle to find opportunities in Brazil, where many family-owned companies have strong, relationship-based businesses. Investors should be aware that social and political constraints have a large impact in this sector and that success will often require active collaboration with social and public entities.

- **Take a through-cycle approach.** Investors must maintain a through-cycle mentality in recognition of the underlying volatility of food and agribusiness (and the impact of the volatility in other sectors, such as oil and gas). This could lead to an investment horizon of more than seven years—longer than that of private equity. Some investments may be more suited to investors with longer time horizons, such as pension and sovereign-wealth funds.
- **Develop commercial relationships.** Investors should not ignore the importance of building relationships with suppliers, major multinational companies, and strategic investors. Instead, they should view these players as potential partners that can help execute investments, mitigate risks, and provide exit options.
- **Develop operational capabilities in agribusiness.** Investors should be prepared to build the capabilities needed to operate successfully in the agribusiness sector. Many of the capital-intensive segments of the value chain, such as production and processing, will require investors and owners to understand how to achieve best-in-class operations to capture their full value.



The food-and-agribusiness sector has demonstrated strong performance but is complex and idiosyncratic. Within this space, we have identified 24 hot spots likely to prove interesting for investment consideration over the next five to ten years. Our experience shows that pursuing due diligence in relevant subsectors and following the five approaches we have described increases the chance that investors can capture attractive returns while addressing some of the most significant needs of the global population. ■

¹ Z. G. Bai, D. L. Dent, L. Olsson, M. E. and Schaeppman, *Global Assessment of Land Degradation and Improvement. 1. Identification by Remote Sensing*, International Soil Reference and Information Centre, World Soil Information, 2008, isric.org. The report defines degradation as a long-term decline in ecosystem function and measured in net primary productivity.

² Precision agriculture is a farming-management concept based on observing and responding to intrafield variations. It employs technologies such as satellite imagery, information technology, and geospatial tools that optimize the use of resources to maximize outputs. Increasingly, applications of big data in agriculture are being included in the definition.

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