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The booming agriculture industry would seem like one of today's surefire investments, both for companies expanding within the business or private equity firms looking to invest in them. The world population is expected to add another one billion mouths to feed to the current seven billion between now and 2030, according to the UN's Food and Agriculture Organization (FAO). The FAO also estimates that meeting the needs of this rising population, along with closing nutrition gaps and accounting for dietary changes, will require current agricultural production to increase by about 60% over that time.

As shown in Exhibit 1, available arable land to expand acreage, meanwhile, is only on the order of 5% of that already in use, so most of the additional output must come through improving productivity and reducing loss across the value chain, from seed to preharvesting, from harvesting to storage and distribution, and from equipment to financial services. Also fueling growth are high energy prices, which have been boosting demand for the crops that provide good sources for biodiesel fuels, such as sugarcane.

As attractive as global agriculture may be, there can be great variation in industry strength and market dynamics from one market or business to the next, with each offering some mix of favorable and unfavorable characteristics. Based on our extensive work with agriculture businesses across the globe, Stax has identified five critical areas to look at closely when considering potential agricultural opportunities.

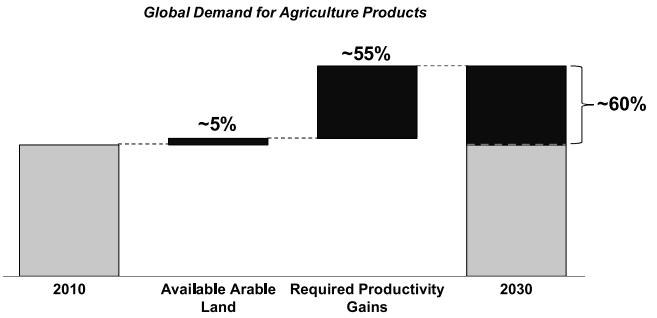
LOCAL WEALTH AND TASTES

As Exhibit 2 illustrates, there is a clear correlation between per capita wealth and interest in protein: as per capita wealth rises, consumption tends to shift from grains toward protein-based diets. Spending by the growing middle class in emerging markets is expected to reach $20 trillion over the next decade, in the process boosting the consumption of animal products by an estimated 44%. Paradoxically, dietary shifts away from grain and toward meat-based proteins boosts demand for grain significantly, since it takes four to five cups of grain protein to make one cup of animal protein such as chicken or pork.

As a real example, the United States feeds 26 million metric tons of grain to livestock each year to raise 7 million metric tons of animal protein, and it is within a highly efficient market. Consider that multiplier effect on places like China, with its 1.3 billion people. Even if, hypothetically, only 10% of the population shifts to a protein-based diet, that alone would boost the nation's demand for grain by some 30% to 40%. Whether you think food prices are high today, such

EXHIBIT 1

Productivity Critical to Feed Growing Global Demand



Source: Stax analysis based on United Nations Food and Agriculture Organization.

demand spikes would certainly drive them up, and we see consumption rising across Asia in correlation with that wealth creation.

Just knowing which kinds of foods the local population prefers isn't enough. *How* they like to consume it can also vary widely. For example, in some places consumers may prefer to buy poultry by the pound, while in others they tend to buy by the bird, prompting producers to focus on maximizing the number of birds, even if they're smaller. Similarly, US consumers prefer white meat, whereas most of the rest of the world's palates tend to favor dark meat. Even the penetration of quick serve restaurants or packaged-food companies can drive farming trends in a particular market. These businesses often prefer to use inputs that originate closer to their production facilities and restaurants, which in many cases encourages farming closer to urban locations if that's where the consuming company is based. The farmers tend to follow their customers, whether KFC, Tyson, or Safeway.

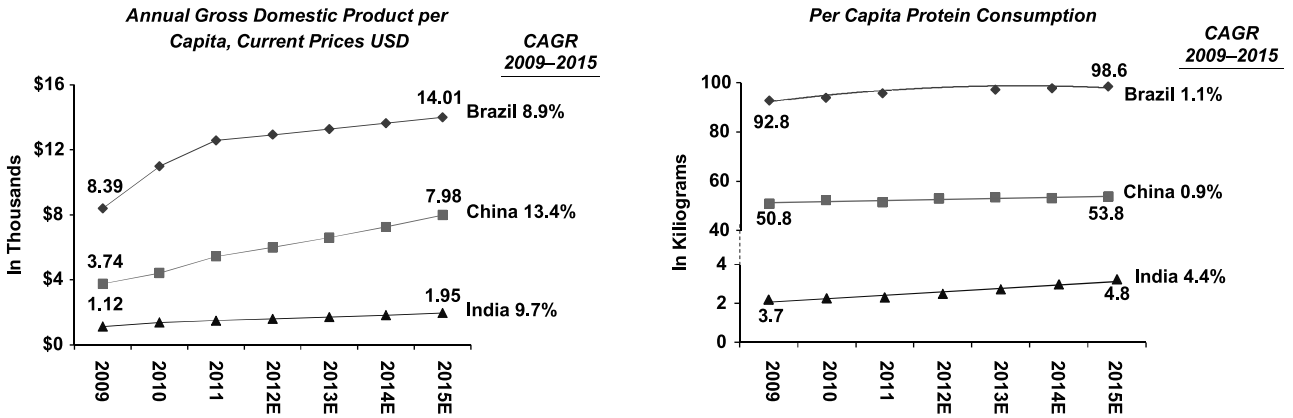
GLOBAL VERSUS LOCAL MIX

Many elements play into this consideration. What is the source of demand for an agricultural market's products? If it's largely local, its market may be limited, but it may have favorable cost structures. Do you want to change the geographic mix, and is it feasible to do so? If you see an opportunity to switch out crops to one with lower production costs and stronger pricing, how would this affect the balance between local and global demand—and is it what you want?

Bear in mind, also, that the pace of crop switching has accelerated to become more akin to commodity trading, with computer programs often driving switches between such crops as sugar and high-fructose corn syrup. Computers can model demand and cost expec-

EXHIBIT 2

Rising Developing Country Wealth to Produce Protein-Based Consumption



Notes: Protein consumption in this exhibit includes poultry, beef, and pork. Pork consumption for India is not shown, as the number of pork consumers in the country is negligible.

Sources: Stax estimates based on IMF and World Bank data; USDA & USDA Foreign Agricultural Service.

tations to forecast which will be more profitable in the near term. Does the investment you're considering have the flexibility necessary in that kind of environment?

LOCATION AND INFRASTRUCTURE

There are many links in the value chain that gets food from farm to fork. It's important to understand if there are any notable gaps in that chain for an operation you're considering and figure out a way to rectify or work around them. This involves much more than just proximity to markets. Does the location have the storage systems and management to hold the output? Another question is whether the farmers have the roads and distribution network to get their output to the port? Does the increased price potential in distant markets create sufficient opportunity to invest in infrastructure? If not, are there large food customers willing to build the storage?

We've seen increasing willingness to take this step, as accelerating increases in grain prices make it beneficial to buy grain and store it—with the savings from avoiding subsequent price rises offsetting the typical cost of storage in less than two-and-a-half years, down by nearly half from the close to five-year payback just a few years ago (see Exhibit 3).

Are there signs that the local agricultural community is moving to add more value by processing food as well as growing it? And is there anything notable about the climate, as in parts of Brazil that offer two harvesting cycles each year?

FINANCIAL CONDITION AND OBJECTIVES OF FARMERS

A region with a large and growing number of farms may appear to be a natural expansion target for agricultural suppliers and equipment manufacturers. But the farmers won't be buying much if they're cash strapped and lack credit. In reality, equipment sales tend to go up as farms consolidate and gain efficiencies. A broad understanding of the cash flow and creditworthiness of potential local customers is critical when seeking to invest in a new market.

Local wage levels are another factor to consider, particularly if you're looking to sell products or services relating to mechanization. If a region's wages are at the low end of emerging market ranges, farmers there have little incentive to replace cheap labor with comparatively more expensive western technology. And, at a very basic level, what primarily is the local farmers' purpose in farming? Are they looking to commercialize, which would make them more receptive to productivity improvements? Or are they happy just feeding their families and maybe doing a little trading with neighbors?

DRIVERS OF GOVERNMENT POLICY

Government policy has an obvious impact on the flexibility to operate a business and maximize profits. For example, if a country grows crops used for alternative fuels, is the government encouraging its farmers to export these crops and build global share, or is it more concerned about locking the exits in favor of domestic energy security? More broadly, is it encouraging commercialization of its farms or is it pushing them to serve local needs first? Understanding a government's motivations can provide a sense of whether you need to factor in a potential for higher export/import tariffs or other restrictions.

Similarly, where does government policy sit in terms of the trade-off between enhancing efficiency and creating jobs? Policies vary widely, but they serve as good indicators of the potential for mechanization. In the Congo, for example, the government's interest is in boosting crop yields from a limited amount of fertile land, so it encouraged large European players to come in and help accomplish this objective, resulting in a boost

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EXHIBIT 3

Storage Costs Becoming Easier to Recoup

On-Farm Corn Storage Bin Payback Period			
	2007	*2010*	*2012*
Approximate Retail Cost of Bin	$49,400	$56,800	$58,300
Bin Capacity	$50,000 bu	$50,000 bu	$50,000 bu
Price Premium[a]	$10	$15	$23
Total Savings	$10,653	$15,838	$23,866
Total Payback Period	*4 years 8 months*	*3 years 7 months*	*2 years 5 months*

Note: Calculated with the assumption that at least 70% of a bin will be used at any given time.

[a]Price premium is the difference in average prices during harvest season and non-harvest season.

Source: Stax estimates; USDA average montyly corn prices.

in mechanized farms from 5% to 20% in recent years. In places like Indonesia, on the other hand, the government is more concerned about unemployment and is thus willing to forgo mechanization and tolerate somewhat higher prices, as long as it keeps people working.

Even the effectiveness of the government itself can have implications for a country's agricultural industry. The government of India, for example, encouraged farmers to produce bumper crops of grain over the past several years in order to feed its huge population, but it has not been able to put in place proper units to store and manage the output. As a result, tens of millions of metric tons were left exposed to the elements to rot.

CONCLUSION

The five areas outlined here have surfaced as key, based on Stax's more than a decade of deep dives into the agricultural business. They should frame the broad considerations when making strategic decisions about new agricultural enterprises or investments, or simply where to add resources. They can help global agribusinesses identify where they can leverage their brand or distribution channels and help private equity firms assess the appropriate positioning of a prospective investment. Of course, there are a multitude of others specific to particular points along the value chain, from land and equipment to seeds/fertilizer and agricultural services—even the mixing in of special nutrients. Some observers advocate taking into account intangible variables such as local farmers' ability to learn new techniques, and they follow that hypothesis with very specific opinions about which countries' farmers have the steepest and shallowest learning curves (we won't share those opinions here).

Clearly, a seemingly infinite number of variables can play into the analysis of whether and where to expand or invest. If you understand which the key ones are and can frame them in terms of what's most important to you—whether you're interested in a particular part of the value chain, looking at a particular geography, trying to understand the potential to leverage output with technology, or similar priorities—you'll know the appropriate factors to focus on. An informed judgment is key to any successful investment, and having an appropriate framework to guide your analysis can make success more likely.

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