THE SECRET FINANCIAL LIFE OF FOOD

From Commodities Markets to Supermarkets

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Chalk markers tally prices from various American and Canadian grain markets at the Chicago Board of Trade (early twentieth century). (Image used with the permission of CME Group Inc. © 2011. All rights reserved.)

CHAPTER ONE

How Does Commodities Trading Work?

What shall we eat, what shall we drink, and wherewithal
shall we be lighted? Are the three questions
with whose pleasant solution the . . . Exchange charges itself.
HARPER'S NEW MONTHLY MAGAZINE, JULY 1886

This is not a book on how to trade commodity futures; it is a book about culinary history and the role that the commodities market has played in shaping culinary history. But before delving into the histories of the various contracts, it is important first to address three questions: How did the commodities market evolve into what we know today? How does the modern commodities market work? And perhaps most important, how does the trading of food-based commodities influence what we eat and what we pay for food?

The Evolution of the Commodities Market

Though it is impossible to put a time stamp on the very first commodities market transaction, many traders like to point out that the concept of grain "futures" dates all the way back to the days of the Hebrew Bible: Joseph analyzed the pharaoh's dream of cattle and crops, discerned that a drought would come, and diligently went about storing immense amounts of grain. By the time the famine arrived, Joseph had cornered the grain market, ultimately becoming a very rich man.

Others pinpoint the birth of the markets as taking place in Osaka, Japan, in 1730. Feudal lords there established warehouses to store and sell rice paid to them as land tax by their villagers. In order to protect their booty from wild fluctuations between harvests, they formed the Dojima Rice Market, which was set up in the house of a wealthy rice merchant. There, the merchants gathered, and with shouts and gestures, they negotiated the price of their "rice tickets." Ostensibly, this was the world's first organized futures exchange.

Meanwhile, still others argue that the open outcry for transactions between buyers and sellers preceded the Dojima premises by a number of centuries. Ancient Phoenicians, Greeks, and Romans openly traded options against the cargoes of incoming and outgoing ships—often laden with spices (chapter 2). And in the tenth and twelfth centuries, during seasonal merchant fairs in Brussels, Madrid, and elsewhere, merchants would gather to loudly and openly negotiate for the future delivery of merchandise. Regardless of when or where the world's first true market originated, it was not until 1826 in England, and two decades later in the United States, that the traditional open-outcry futures market was established.

Because this book is about trading in the United States, let's focus on the first U.S. futures mart: the Chicago Board of Trade (CBOT) in 1848. Chicago became the trading hub of the United States, as it represented the great railroad center for moving products grown in the West to the population centers in the East. In 1848, the CBOT opened its doors for trading in grain—specifically, wheat—to become the world's largest futures exchange during most of its history. Its building, erected in 1885 at La Salle Street and Jackson Boulevard, became the symbol of Chicago's commercial vitality.

Just a couple of decades later, in 1860, the New York Produce Exchange opened for business, and within fourteen years, in 1874, the Chicago Produce Exchange (later to become the Chicago Mercantile Exchange [CME]) was formed. The rivalry between the two Chicago exchanges was particularly fierce; the CBOT was painted as the white-glove grain-trading granddaddy of the futures market, while the newer CME was considered a scrappier upstart, a magnet for myriad immigrant groups seeking to make their fortunes through livestock trade.

Over time, the exchanges would splinter into smaller groups and consolidate and sometimes splinter off yet again (figures 1 and 2). We've come a long way from the nineteenth-century patchwork of commodities markets. We no longer trade molasses on the New York Coffee and Sugar Exchange, and we no longer trade eggs on the Chicago Butter and Egg Board. Nearly all the independent marts have consolidated over the decades, now rolling up in the agglomerated CME Group in Chicago and the IntercontinentalExchange in New York. Meanwhile, the West Coast exchanges have long since flickered out altogether (for more on these exchanges, see chapter 4).

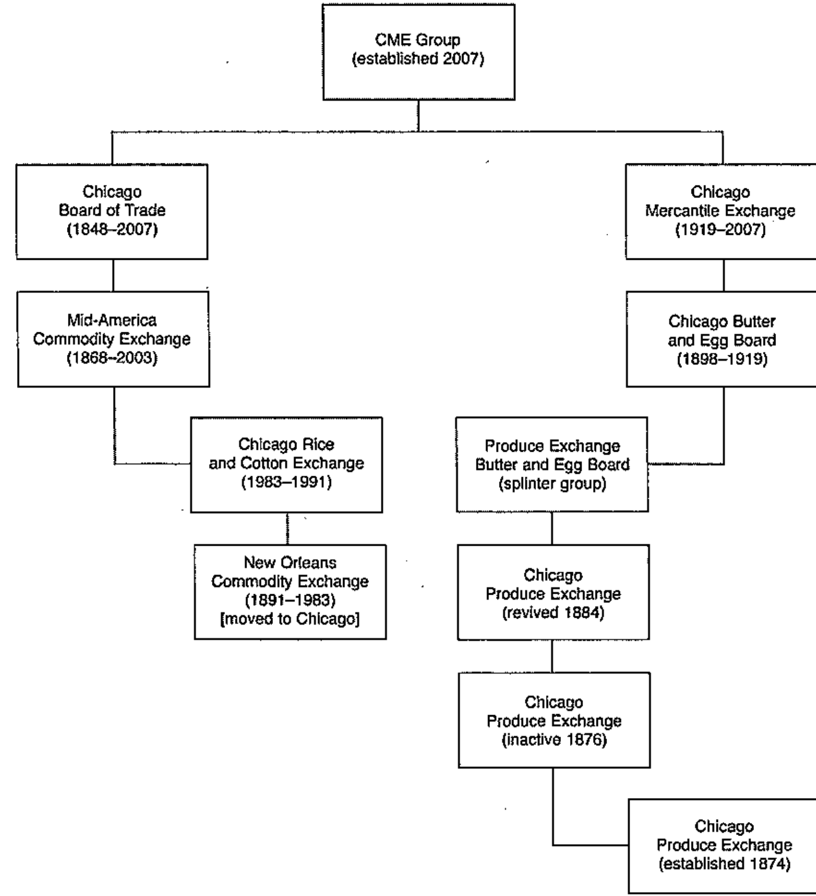

Figure 1 Chicago commodity exchanges.

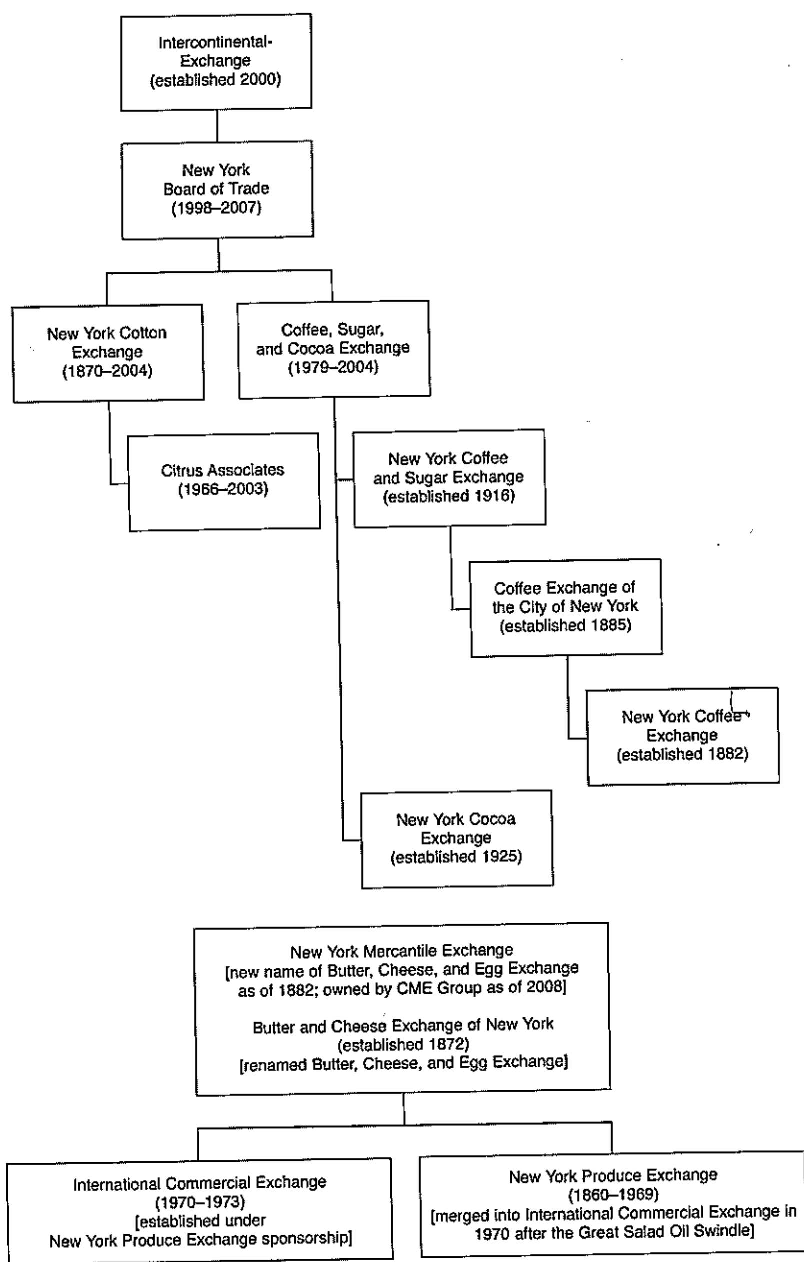

Figure 2 New York commodity exchanges.

This book makes evident that the history of America's commodity exchanges runs a parallel course with the history of industrialization and technology. The mercantile system began as something not far removed from an open-air farmers market, with goods (or the promise of future goods) exchanged for money. But the development of the telegraph enabled traders to sync up prices around the country and around the world, to learn when foodstuffs would be coming to market—not to mention key news about how natural disasters and other events might affect the quantity and quality of those goods. Improvements in canals and later the railroad system, along with the advent of refrigerated rail cars, would help speed the delivery of goods and change the face of the nation—including where the financial markets would centralize. The markets would move to within reach of the farms and livestock slaughterhouses and within reach of the human sprawl mobilizing westward.

With this movement and change, the floors of those financial markets have evolved considerably: gone are the chalkboards and whiteboards on which prices would be feverishly written and erased over and over again. Prices are digitized now. Gone, too, are the once ankle-deep thicket of paper trading tickets; those also have become digitized. The exchange floors, once noted for their teeming throngs of humanity, have thinned somewhat as more trading migrates online and off-exchange. The colorful jackets, hoarse shouting across the pits, and hand signals for communicating orders still exist, but every trader has a smartphone in his or her pocket, and the smartphone buzz is part of the din. The commodities market continues to change and evolve.

How the Modern Commodities Market Works

Although this book is largely dedicated to telling the stories of those long-ago exchanges, it is important to understand the vital role of today's exchanges as well. Hopefully, knowing the history *and* the present will help put each into greater context.

I will leave the deep-dive explanations of the inner workings of the financial markets to the business school professors (and, specifically, to the Institute for Financial Markets, for those seeking reference materials). But

to understand the role that the markets play in the food chain, it is important to start with a few key concepts.

- *What is a futures contract?* A futures contract is defined as an agreement between two parties. It commits one to make delivery (sell) on and the other to take delivery (buy) of a stipulated quantity and grade of commodity (or other specified item) at an agreed-upon price on or before a given date in the future. Futures are traded on gold, silver, and oil, as well as on many other nonfood commodities, in addition to "agricultural" or food-based commodities.
- *Who are the key players in the futures markets?* It is easy to think of the commodities market players as belonging to a homogeneous group. But you'll find a few different types in the marketplace—it is one reason it can sometimes be difficult to understand market moves. Each has a different motivation for the decisions it makes. For example:

Risk management. Some buyers and sellers are trying to manage risks and use the futures market to lock in a price for later purchases or sales—for example, a farmer who wants to fix a price at planting time for corn or wheat to be harvested at a future date, or food processors that want to set a price in advance for grain that will be turned into pasta or bread.

Speculation. Meanwhile, others are speculators hoping to make money by correctly guessing how prices will move. These speculators may have no other business connection to the product they are trading and generally have no intention of ever owning corn, wheat, or hogs. Indeed, there are some traders who proudly profess to having never seen in raw form the commodity they trade—that is, fields of soybeans or sugarcane plants. These speculators often are blamed for excess volatility in the markets.

Hedging and passive investment. Still others buy futures contracts as part of an investment strategy or as a hedge against inflation. Because food prices may move in a different direction than stock or bond prices, some investors see the purchase of futures contracts as a way to diversify their portfolios. Again, many investors in this category have never seen the commodities and have never set foot on a trading floor. Further, just as many owners of mutual funds don't know which companies they hold in their stock portfolios, many investors don't know which commodities contracts are included in their index funds.

- *What drives commodity prices?* It is important to note the wide range of influences considered in trading futures contracts.

Some market participants focus on market fundamentals—factors affecting current and future supply and demand for a product. For food-based contracts, this may include the weather, the state of the economy, exchange rates, fuel prices, and all the other factors that influence supply and demand for a product.

However, other traders focus less on these fundamentals and rely on other techniques to predict how prices are likely to change, such as in technical trading, which relies on charts of historical prices to discern future patterns. Others use statistical techniques to predict price movements.

Further, those investing in commodities as a way to balance a portfolio or hedge against inflation pay little attention to day-to-day developments in futures markets.

- *What's the difference between food and "food commodities"?* In some cases, there's not much difference (e.g., arabica versus robusta coffee; grade AA versus grade AAA butter), but often, the difference is quite stark. All commodities are assigned a grade, so a standard is imposed on what is bought and sold. But that grade is often below what most consumers would choose to purchase. Corn is probably the most striking example—grain market specialist Chad Hart of Iowa State University refers to "food grade" versus "feed grade."[1] The former is sold as canned corn or ground into corn flakes; the latter is used to feed livestock and is distilled into ethanol.

In *The Omnivore's Dilemma*, writer and activist Michael Pollan describes food commodities as "an economic abstraction," as invented in Chicago in the 1950s.[2] For example, instead of buying or selling a particular bushel of corn, traders buy or sell a bushel of corn that meets certain grading standards. Those standards might specify some combination of size, moisture content, level of insect or other damage exhibited, color, or origin. But within those standards, commodities are "without qualities; quantity is the only thing that matters."[3] In other words, commodities contracts aren't about trading the tastiest corn but about enabling the buying and selling of exact amounts of corn that meet these specific standards. Although Pollan's (admittedly justified) complaint is that this system severs the link between the producer of a foodstuff and its ultimate consumer, it makes it far easier to trade, particularly in the large quantities involved

in futures trades. One corn futures contract, for example, represents 5,000 bushels (about 127 metric tons) of corn.

How Does the Trading of Commodities Influence *What We Eat* and *What We Pay* for Food?

To help answer this key question, I turned to several economists and financial experts.

- *It helps keep price swings in check.* Without the "effective risk management tool" that hedging provides, explains Alan Bush, senior financial futures analyst with Archer Financial Services, we might be paying quite a bit more at the checkout counter, and price swings would be considerably wider.[4] For example, it is possible for coffee futures to surge 30 percent in a two-week span, but when we pick up a bag of coffee beans at the store, we don't find that the price tag shows an equivalent 30 percent spike; it is likely the same price as the last bag we purchased. "Hedging has the impact of reducing end-user costs," Bush says. "By making markets more efficient and reducing market risk, this allows buyers and producers to effectively know what their price parameters will be within a certain range."[5] Although the commodities market mitigates day-to-day price swings, it doesn't eliminate them altogether. But most experts I spoke with said that the correlation is delayed: assuming the price changes are sustained, higher (or lower) prices on the trading floor generally are not reflected at grocery stores for about a year to a year and a half.
- *It guides manufacturers in establishing food prices.* Some experts, like Bill G. Lapp, president of Advanced Economic Solutions, posit that commodities trading reflects raw material price changes, rather than affecting price changes at the consumer level. He points to a recent release of the U.S. Department of Agriculture (USDA) crop report, which included the government's prediction for the U.S. corn yield and thus caused a change in price for corn futures. "It's not the commodities trading that changes the price," Lapp says. "It's the value of it." The key role that commodities markets play, he adds, is "price discovery"—a term widely used by traders and food manufacturers alike. Essentially, "price discovery" is the process of figuring out how much one can charge for an item, and the prices quoted in commodities trading provide a handy guide for discovering the price the market will bear. Lapp likens the commodities market to the real estate market: "If there were never any prices revealed in housing transactions, how would you know how much a home is worth? You'd have no comparisons, values per square foot, any sense of how prices are increasing."[6] The communal nature of trading and the public and widespread dissemination of price quotes are equally important. "Otherwise, it would be a much smaller group of people involved in the process of determining the value of a bushel of corn," Lapp warns.[7]
- *It helps restaurants and manufacturers manage costs and profits.* Lapp has a particularly unique viewpoint on the impact of commodities; he works with restaurant companies and food manufacturers to help them manage food costs and risks via the commodities market. The consequences of a 25 percent spike in cattle futures could be calamitous for a large hamburger chain. An increase in menu prices could mean a loss of customers and market share for a significant period—but absorbing the cost could mean an enormous hit to profit margins, potentially affecting earnings for the quarter. "Their profit margins are directly impacted by the swings in the commodities market," Lapp explains. His role is to track input costs for a restaurant and give a prognosis as to where costs may be headed in the next couple of years. "I advise them on whether these are short-term blips or not. For example, if cheese prices are headed higher, will we get some relief in the next months, or will that be a sustained increase? If they take prices up, others will follow. It's an extremely competitive environment. If they make mistakes, it can be a problem that can put them out of business."[8] Some restaurant chains will make substitutions in food products—such as corn syrup for sugar or soybean oil for corn oil—or will even change entire restaurant concepts based on anticipated prices for commodities.

Clearly, commodities prices influence what we eat when we go out to restaurants as well as what we pay at the supermarket. Sometimes, they also affect what gets planted in the first place. Chad Hart explains how farmers use commodities prices to make decisions: "As a farmer, I can decide whether to plant soybeans or corn. Which will provide a better price for me at harvest? Or I can decide the amount to grow. Futures provide a signal. Is it necessarily an accurate signal? No. But it's the best signal we have. People are actually willing to put up contracts and make trades. It represents an actual transaction that will occur."[9]

- *The impact of commodities trading changes over time.* It is also important to understand how commodities trading has evolved. Hart estimates that for every dollar spent on food, 15 to 20 cents represents the raw commodities used in that product. The rest represents advertising, transportation and fuel, labor, real estate, and other inputs. He also points to a 2008 study by the USDA, which figured out how much went into creating a box of corn flakes. "They figured out you paid more for the packaging surrounding those flakes than you did for the corn in the corn flakes!" he crows. "What this tells you is that while food prices can move dramatically, in the scheme of things, they are not a big part of what goes into the price of those corn flakes."[10]

Now, this is a discouraging concept for someone who is researching the connection between commodities and food. But Hart quickly reassures that, historically, the connection was much tighter, and that it is important to understand how the role has changed over time: "If you go back to the 1940s and 1950s, I'd argue that commodities had a greater influence. There was less packaging and food didn't travel as far—there were fewer inputs than the agricultural costs that went into food. Over time, we have seen an erosion in [commodities'] impact on food prices," and commodities swings have exerted less and less influence.[11]

However, there is one notable exception. "The organic, local food, and community garden movements bring back the idea that the main cost we would like to see in our food is the agricultural product underneath," Hart explains, and the excitement in his voice is audible. "As we look at those food systems, we bring back the percentage that is related to the underlying commodity."[12] Just as the utility of commodities trading has evolved from early iterations in Japan and Holland, it continues to evolve with every product we buy and sell today, whether through an organized exchange or a community farmers market.

This is an inspiring concept indeed.