

Today's Trading Environment

Descent of the Pit and Ascent of the Screen

In the opening moments of *Floored*, James Allen Smith's incisive documentary about the decline of Chicago's trading pits, two telling statistics flash across the screen:

- In 1997, more than 10,000 traders traded on pit floors.
- In 2009, approximately 1,000 pit traders remained.

What happened? In a word, computers. In a phrase, computers replaced people. Actually, it's not quite that simple. Like most sea changes in human activities, the change from *open outcry* trading to a fully electronic, often automated, trading environment has been a gradual one. What was once a cacophonous scene of sweaty humans bellowing buy and sell orders while avoiding the elbows of other traders packed into the pit like sardines in a can has been transformed into a market dominated by the cleanly efficient hum of rack upon rack of digital servers placing millions of orders per second. Since Nasdaq emerged in 1971 as the world's first electronic stock market, the use of computers in trading has marched forward with the crushing momentum of an advancing army passing milestone after milestone:

- 1992: The Chicago Mercantile Exchange (CME), founded in 1898, opened Globex, a 24-hour market for trading futures.

- 1997: The London Stock Exchange (LSE), founded in 1801, opened an electronic trading market. The same year, the Toronto Stock Exchange (then TSE, now TSX), founded in 1861, did the same.
- 2000: New York's International Securities Exchange (ISE) opened the first electronic options exchange.
- 2003–2004: Chicago's Citadel Investment Group unleashed its high-frequency trading (HFT) system for U.S. equity options.
- 2006: The venerable New York Stock Exchange (NYSE), founded in 1863, merged with Archipelago Exchange (ArcaEx), an electronic communications network (ECN) founded in 1997.

Along the way, there were many other milestones—too many to list here—but the implications of this evolution is clear: in the world of *institutional trading*, computers are here to stay, and the open outcry trading pit is nearing its last days.

The implications for you, the trader, are not merely academic. In order to trade today's markets successfully and profitably, a trader must know the lay of the land in order to avoid crevasses, drop-offs, patches of quicksand, and myriad other hazards that come with the terrain. Knowing every detail of every hazard is impossible, but knowing what to look out for is invaluable.

■ Players on the Field

So if the vast majority of trading is done outside of the traditional trading pits, where is it being done and by whom? The answers to these questions are, on the one hand, quite clear and simple, and on the other, very murky and complex. What is clearly undeniable is that most trading around the world today is being done electronically—a buyer submits a buy order that is transmitted to a location where it is matched with a sell order submitted by a seller; a trade then executes. That much is simple. Parsing the terms in that simple statement is where murkiness and complexity lie in wait. The first question is: who are the buyers and sellers? Here are several candidates: banks (commercial, retail, investment, private, and central), insurance companies, pension funds, hedge funds, mutual funds, private equity firms, venture capital firms, brokerage houses, algorithmic trading firms, high-frequency trading firms, sovereign wealth funds, municipalities, government agencies, and, finally, *retail traders* like you. All of these players have their own agendas, their own profit motives, and their own sets of strategies

and tactics. Some of them trade in multiple markets simultaneously, while others specialize in just one market or a very limited selection of markets. Many of them host rooms full of human traders sitting at multiscreen computers placing trades with mouse clicks. Some, but not many (yet), make exclusive use of program trading *algorithms* that place trades with no human intervention whatsoever. While it's not necessary for a retail trader to know precisely who (or what) is on the other side of a trade, being aware of the players on the field (and their *size*) is essential.

Why is size so important? Because large orders move the market. Large buy orders, especially a series of large buy orders, almost invariably cause price to rise. Conversely, large sell orders, especially in a series, cause price to fall. Econ 101 teaches that supply and demand rule in markets of all types. Increasing demand leads to decreasing supply and rising prices, whereas decreasing demand leads to increasing supply and falling prices. It's true for guns and butter, and it's true for every type of trading instrument—stocks, bonds, futures, options, currencies, commodities, you name it. In Chapter 4, we'll see how tape-reading techniques can help the individual trader gauge the presence or absence of large orders. Being aware of this presence or absence can give a trader an edge—an advantage that can be used in placing profitable trades.

The second question raised above is where do trades take place? In the old days of floor trading in cities like New York, Chicago, Philadelphia, San Francisco, and Minneapolis, the answer was simple. Trades occurred on the floor of the exchanges on which buy and sell orders were placed. A person could see with the naked eye where each trade took place. Today, while a small percentage of trades still occur on the few trading floors that remain, the answer is not quite so simple. While most trades still occur at an exchange, each trade is actually made by software known as a *matching engine*, which runs on a digital server hosted by that exchange. Matching engines do just what their name suggests—they match buy orders with sell orders prior to trade execution. Most matching engines for exchanges based on the East Coast are in New Jersey in places like Weehawken, Secaucus, or Mahwah. Chicago-based exchanges keep their servers in their own sweet home Chicago. Beyond the usual stock, options, and futures exchanges are the infamous and shadowy dark pools, which are private exchanges accessible only to investors capable of placing extremely large orders. Dark pools provide markets in which a huge stock order can be traded anonymously and hidden from public view until the trade has already executed. By hiding large trades from the public eye, traders can avoid price moving against their

trades. On a public exchange, a trader's desire to buy or sell a large quantity of stock would be visible to anyone in the market, thereby skewing the current state of supply and demand and potentially moving price away from the trader's target. Dark pools are the subject of much controversy today, with some strongly opposed to their very existence and others highly supportive. Heated debate about their regulation or outright banishment will likely be part of the political landscape for the foreseeable future. For retail traders, however, simply being aware of their existence is sufficient.

■ The Algo Brothers

It was inevitable. The increasing use of digital technology—mainframe computers, personal computers (PCs), server farms, wide-area networks (WANs), local-area networks (LANs), broadband connectivity, and so on—would one day give rise to the birth of the algorithmic trade. Anyone opening an account today with any online brokerage will have nearly instantaneous access to mountain upon mountain of market data, much of it delivered in real time and often for free. Even neophytes today have access to a real-time data feed that wouldn't have entered the wildest dreams of legendary early Wall Street traders such as Jesse Livermore or Richard Wyckoff. Sophisticated charting programs allow traders to customize the way in which these mountains of data are presented graphically. Indeed, a picture is often worth a thousand words (or columns of numbers). The ubiquity and ease of data access is so pervasive today that it's easy to take it for granted. Be that as it may, rest assured that if even a beginning retail trader has access to volumes of market data, the large trading firms have it as well and in spades. And what they do with those data goes way beyond painting a pretty picture with it.

In today's financial markets, each time you place a stock, options, or futures trade, you enter a world dominated by massive amounts of capital allocated by algorithms designed by brilliant mathematical minds and running on the ultra-fast computers of the world's largest financial institutions. Over the past decade, firms like Goldman Sachs, UBS, Barclay's, Morgan Stanley, and many others put two and two together and saw the gold in them thar hills of data laid out before them. After first recognizing the tremendous untapped profit potential buried in these data, they set their sights on mining them. Being of extremely deep pockets, they created rooms full of PhDs packing formidable knowledge in mathematics and computer science. From this knowledge and countless man-hours of algorithm design and computer coding came programs capable of mining torrents of data,

extracting salient bits of market information, and placing trades based on that information. This kind of program trading based not on *fundamentals* but instead on *quantitative analysis of technical data* is called quant trading; its practitioners are known simply as *quants*. No one knows exactly how pervasive quant trading is in today's markets; the estimates range from 60 percent to 80 percent of daily market volume or more. Suffice it to say that quant trading is a major part of today's market structure. In fact, many market observers believe a major cause of the Flash Crash of May 6, 2010, was that the vast majority of algorithmic trading programs backed away en masse from the *bid-ask spread*, resulting in a lack of demand and a concomitant and extraordinarily rapid drop in price.

The Flash Crash proved the adage that, indeed, when there's nobody willing to buy, price will inevitably and inexorably fall. The harrowing episode in market history that was the Flash Crash begs the question: when program trading has the potential to cause such severe market disruption, why would anyone choose to practice it? An answer can be found in extensive media coverage from 2009, when it was reported that Goldman Sachs had achieved record quarterly profits, much of it attributable to its program trading. As is usually the case, if the profit potential is there, they will come. Increasingly, most institutional traders practice at least some program trading, and some do nothing but. More and more, trading desks are being replaced by trading racks. May the best algo win.

In reality, this process of market data extraction and trade decision making based on information gleaned from those data is nothing new. That's what Jesse Livermore did at the turn of the twentieth century, too. But he did it based on numbers on a chalkboard or on paper tape spit out by a clacking ticker-tape machine. The differences today—and they are *huge*—are of volume and speed. In days of old, trading occurred at the speed of word-of-mouth. Today, trades move with the speed of electron motion. And that brings us to the latest form of program trading, one that can be seen as the hyperactive brother within the Algo family: high-frequency trading (HFT). Just as the advent of program trading in the global marketplace was an inevitable consequence of the introduction of electronic trading, so is HFT. But just as traditional program trading uses many techniques of quantitative analysis that have been around for years, so does HFT make use of some not-so-new techniques—those of the scalpers. For years, successful scalpers have combined eagle-eyed chart-reading skills with quick reflexes and trigger fingers worthy of the best video gamers to rack up similarly quick profits from trades lasting just seconds. Scalpers jump into a moving stream

of price and jump out almost immediately, taking their catch with them. Well, actually, *immediately* is used here in a relative sense. What might seem immediate when measured on a human scale would be considered absolutely slothlike from the perspective of an HFT trading platform.

So, what do HFT traders do and who are they? In the most general sense, HFT platforms use extremely fast computers to place extremely quick trades based on profit opportunities discovered by their algorithms. Think scalpers on steroids. Whereas a human scalper might have a couple or even several screens of charts and rapidly moving columns of price and volume data flashing before his or her eyes, many HFT platforms have the whole world of market data flowing into their buffers every second of every day. Think of it: *all* of the options, futures, bonds, currency, and equity data from *all* of the world's markets at *all* times of day and night just waiting to be parsed and analyzed by blindingly fast banks of computers. But all of that data wealth would be wasted if not for very, very smart software trained to see profit opportunity and to act on it. For that reason, most HFT firms follow the traditional program trading model of employing the best and brightest mathematicians and computer scientists for their programming teams. As a group, HFT firms tend to be a quiet bunch. Until very recently, they preferred to operate out of the public eye, almost as if in the shadows. The Flash Crash changed all of that. In the aftermath of that remarkable market disruption, HFT was often singled out by market watchdogs as one of the likely culprits at fault. As a result, 31 of the largest HFT firms have banded together into the Principal Traders Group, presumably in part to tell their side of the story in their own defense. You really can't blame them for banding together; the head of the Securities and Exchange Commission (SEC) has called for a thorough examination of the role of HFT in the Flash Crash and the commissioner of the Commodity Futures Trading Commission (CFTC) has characterized HFT traders as cheetahs first to the kill in the markets. The bottom line: increased regulation of HFT in the near future is highly likely.

While an exhaustive investigation of HFT goes beyond the scope of this book, a few of its strategies and tactics are worth mentioning, if nothing else because they have such colorful names. In his book *All About High-Frequency Trading* (McGraw-Hill, 2010), HFT pioneer Michael Durbin lists the following HFT techniques: Penny Jump, Push the Elephant, Tow the Iceberg, Jump the Delta, Rebate Scratching, and Slow-Mover Takeout, among others. While each has its own set of unique characteristics, many of them seek to capitalize on market imbalances through *arbitrage* of one sort or another.

For example, if one HFT platform sees that it can buy a *trading instrument* in one market at a lower price and sell it in another at a higher price, it will attempt to capitalize on that opportunity instantaneously before another HFT platform is able to do so. Speed is of the absolute essence; a delay of even a few milliseconds in either trade entry or exit will often make the difference between a winning trade and a losing trade. For this reason, and understandably so, many HFT firms colocate their servers in the same buildings as the servers run by the major exchanges. Therefore, there are many HFT servers in New Jersey and Chicago. When milliseconds matter, you want your trade submissions to travel the shortest distance possible.

■ Where Are You?

After reading the last few pages profiling the gigantic financial and trading resources unleashed by the biggest players in the market every day, you, as an individual retail trader, might be feeling pretty small right now. You might see yourself as a very small David against a very large Goliath. But wait, who won that battle? David did.

The goal of this book is to demonstrate that a retail trader armed with a sound trading plan based on proven technical analysis along with a strong commitment to trading discipline can succeed and profit consistently in a marketplace dominated by giants. Bringing down Goliath with a single shot? Certainly not. But trading profitably on a consistent basis day after day, week after week, year after year? Absolutely.

Every successful campaign, whether in war, sports, politics, marketing, or whatever, contains two primary elements: strategy and tactics. It is very important to understand the difference between the two. A campaign's strategy is an overall plan designed to achieve the campaign's goal. Tactics are a set of individual, particular techniques applied step by step in order to complete a given strategy. For a retail trader the goal is consistent profitability. The strategy presented in this book for achieving that goal is to follow the money, to ride the coattails of the Big Players, to play the game just as Smart Money does. A discussion of our tactics follows in the remainder of this book.

