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**VISUAL GUIDE TO**

# OPTIONS

JARED A. LEVY



# Visual Guide to Options

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# Visual Guide to Options

Jared A. Levy

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### Don't Be Afraid to Take Risks

*Load the ship and set out. No one knows for certain whether the vessel will sink or reach the harbor. Cautious people say, "I'll do nothing until I can be sure." Merchants know better. If you do nothing, you lose. Don't be one of those merchants who won't risk the ocean.*

—Rumi

### Think Outside the Box

*... a new type of thinking is essential if mankind is to survive and move toward higher levels.*

—Albert Einstein

### Be Prepared

*If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.*

—Sun Tzu

### Ask Questions

*A wise man can learn more from a foolish question than a fool can learn from a wise answer.*

—Bruce Lee

### Don't Give Up

*The world ain't all sunshine and rainbows. It's a very mean and nasty place and I don't care how tough you are it will beat you to your knees and keep you there permanently if you let it. You, me, or nobody is gonna hit as hard as life. But it ain't about how hard ya hit. It's about how hard you can get hit and keep moving forward; how much you can take and keep moving forward. That's how winning is done!*

—Rocky





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# How to Use This Book

**T**he *Visual Guide* series is meant to serve as the all-encompassing, yet easy-to-follow, guide on today's most relevant finance and trading topics. The content truly lives up to the series name by being highly visual; all charts are in color and presented in a large format for ease of use and readability. Other strong visual attributes include consistent elements that function as additional learning aids for the reader:

- **Key Points:** Primary ideas and takeaways, designed to help the reader skim through definitions and text.
- **Definitions:** Terminology and technical concepts that arise in the discussion.
- **Step-by-Step:** Tutorials designed to ensure that readers understand and can execute each section of a multiphase process.

- **Do It Yourself:** Worksheets, formulas, and calculations.
- **Bloomberg Functionality Cheat Sheet:** For Bloomberg terminal users, a back-of-the-book summary of relevant functions for the topics and tools discussed.

For e-reader users, the *Visual Guide* series is available as an enhanced e-book and offers special features, like an interactive Test Yourself section where readers can test their newly honed knowledge and skills. The enhanced e-book version also includes video tutorials and special pop-up features. It can be purchased wherever e-books are sold.



# Acknowledgments

**N**othing truly meaningful in life is created or even possible if not for the trials and tribulations that shape us as humans.

I'm most grateful to life's mountains that have stood before me, challenged me, and ultimately given

me a chance to get a better view of the beautiful existence I have been fortunate enough to live.

Thank you.



# Introduction

**M**y goal for this guide is to allow you to open to just about any point in the book and find a useful tip, method, or actionable idea that you can apply immediately, without having to go back and read too far.

Most of us believe we are free thinkers, but it's important to realize that on some level, information flows into our minds through filters or biased channels. The specific publications you read or websites you browse dictate your information sources. As you structure your investment thesis and strategy, don't ever be afraid to break your normal pattern and look for alternative methods of gathering information, statistics, and strategy.

Depending on your particular exposure or experience with trading options, you are going to have preconceived notions about how useful they are to you. Even if you have been an extremely successful options trader, keep your mind open to looking at the option markets and their risk in a different way. The ideas,

techniques, and processes in this book are not the only solution, but they have worked for me for many years and may make a good addition to your existing repertoire. No one has “the secret sauce”; you simply need a viable action plan and a sound risk and psychological management system.

Although there is no perfect way to trade options, there are many wrong ways to do it. I learned some valuable (and costly) lessons along the way; I hope to show you where I screwed it up so that you can avoid the major pitfalls of *bad* options trading.

This book expands on the focus of my first book, *Your Options Handbook*, and details more of the nuanced techniques and analysis that professionals use to get an edge on the market. The goal of this text is to help you to truly understand risk, order flow, and volume as well as execution and strategy.

Even with Bloomberg being one of the best information sources out there, don't be discouraged if you don't have access to a terminal. The bulk of strategies,

tools, and techniques contained in these pages can be utilized and applied in many forms.

Also realize that this book couldn't possibly contain every single thing you need to know about options, so if you have a question or if you don't feel

completely comfortable with a concept or strategy, be sure to research it further and ask questions! I am available at [www.jaredlevy.com](http://www.jaredlevy.com) if you need a helping hand or if you are looking for further depth on a subject.



# Visual Guide to Options



# The World of Options

**T**here are infinite ways that options can be utilized in your investment portfolio. Whether you are an individual writing covered calls on 200 shares of IBM, a hedge fund manager with billions in assets that need to be protected against volatility or “tail risk,” or anywhere in between, there is a place for options in your account, period.

To get the most from the options markets, it is best to fully understand the underlying securities from which they are valued and then take on the options themselves. The trends, abnormalities, and patterns that emerge in the options markets get their cues from their underlying security. Because of this, you must never look at an option (strategy) in a vacuum.

When I was trading on the floor, I tended to end my trading day delta-neutral—or not having a “directional bet”—going into the next morning. Market makers, like I was, have to deal with a constant flow of orders without preparation. By ending delta-neutral

the previous day, I could reset and remain flexible in my strategy.

Option traders tend to have an “if, then” attitude because of our ability to be elastic with our hypothesis and adjust positions as events, news, and data change. This mind-set is usually in stark contrast to a regular stock trader, who needs to be more rigid in predictions and theses. I certainly prefer the flexibility options offer, because I still have yet to meet a person who knows exactly where a stock is going, not to mention that I always like contingency plans. As an option trader you always have the choice of getting or giving odds depending on the situation.

As a professional with a trained eye I can look at an option chain on just about any security and surmise a general hypothesis about the condition of the stock; but I am learning more and more that it’s actually easier—and more profitable in the long run—to make sense of the nuances of the underlying detail first and

## KEY POINT:

Options traders can use certain strategies to take a neutral position in a stock or can employ protective tactics to increase their probability of becoming profitable, even on the fly.

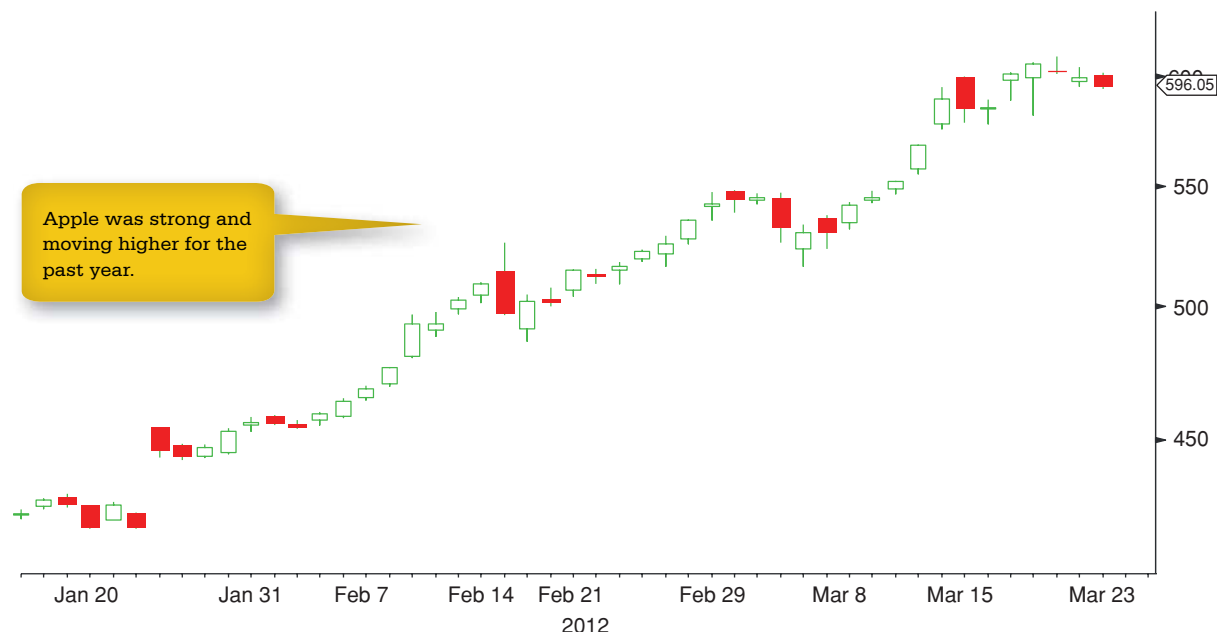
use the options markets as your microscope and scalpel as opposed to your looking glass.

But we all get that wild streak from time to time. I remember looking at Apple's upside call skew in early 2011 (see Exhibit 1.1) and thinking that it might be a good idea to sell some out-of-the-money call spreads because they were so expensive. Little did I know that they had planned a conference call to announce a special dividend and the stock started screaming higher (those calls were pricey for a reason), putting me in an uncomfortable spot; always take time to do your homework!

## Have a Checklist

I believe that the most effective method of trading starts with a checklist or filter of sorts that gets you to a specific quantitative, objective target on which you can add your subjective twist. Start from the outside (macro) and work inward (details of a stock's fundamentals and technicals).

Optimally, your checklist should consist of fundamental, technical, and statistical parameters that narrow your potential candidates to a manageable field.



**Exhibit 1.1**

Bloomberg's OSRCH screen is a quick and dirty way to cut through some of the basic fundamental, technical, and statistical noise that exists. Once the noise is out of the way, you can more effectively review only the top contenders without wasting too much time on research and missing your timing.

There are many ways of finding candidates. Running scans and filters at different times will help you to screen for stocks that meet certain criteria. Another method I favor is to form a thesis around a general social, technological, political, or global trend and find the stocks that stand to benefit (or falter) from it. Form a timeline and potential path in your head of how you think these events will unfold and then overlay an option strategy on top of that thesis.

In addition to all this, when you are forming a forward thesis, consider the effects of news, earnings, macroeconomic climate, seasonal effects, and even political developments. I can't stress this enough! The emotional waves of the masses often override corporate fundamentals and technical formations at least in the short term. Don't get stuck with blinders on in your own bullish or bearish mind. It's the worst place to be.

In the longer term, earnings strength and a viable, thriving business structure with a popular good or service is what I believe motivates the markets. Most analysts, especially those using the Discounted Cash Flow (DCF) methodology and the like, agree.

The core of the options universe revolves around volatility and time. Many of the strategies, techniques, and methods I cover in this book are related to volatility/time

in some form or fashion. You must understand both the volatility of the stock and the volatility of the option or spread that you are trading. An intimate knowledge of volatility in the underlying asset and subsequent manifestation in the derivative is essential to generating consistent profits and becoming a professional trader.

We explore volatility in detail in Chapter 7 and reference it throughout this book. You also see the Bloomberg screens used to analyze it. At the end of the day, everything comes back to volatility; make its comprehension your number one priority. Just when you think you get it, you are just getting started.

The volatility conundrum haunts every good option trader. It is a question that cannot be solved, at least not fully. But you can make "realistic assumptions" about it and often that is good enough.

If you get what I am saying then you probably have some experience under your belt; if you do not, then you have a long journey ahead of you—take it slow.

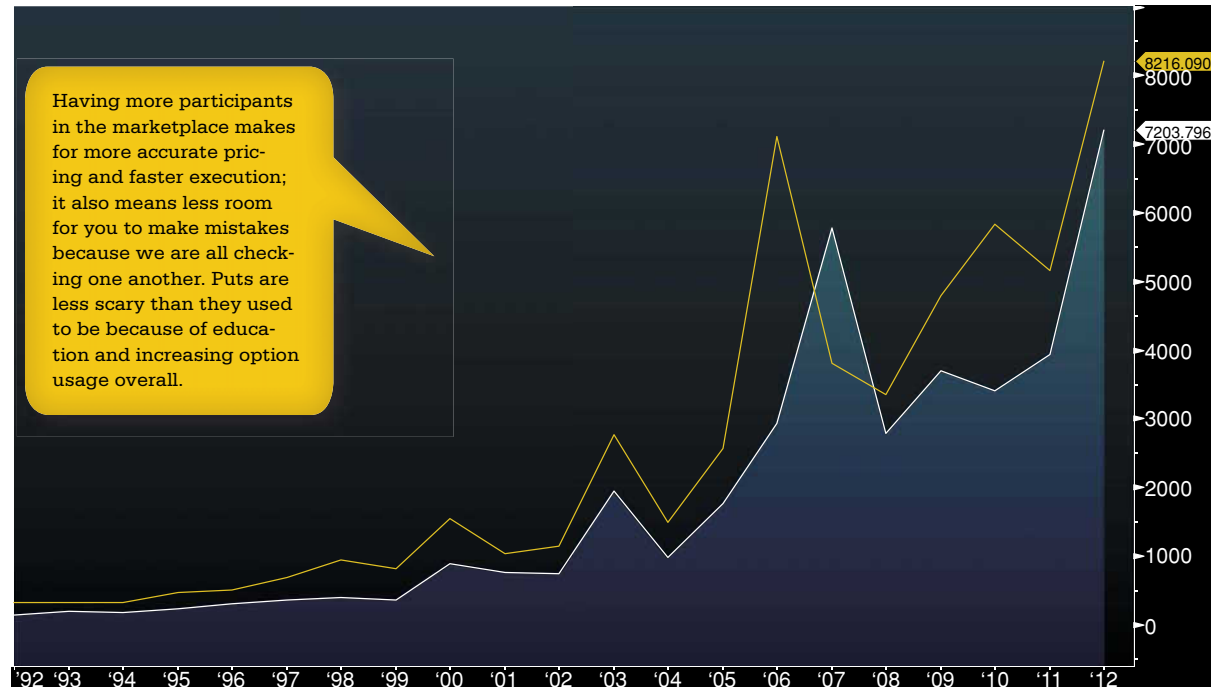
Exhibit 1.2 shows the growth of puts and calls separately over the last 20 years (calls in yellow).

Options traders are growing in record numbers. Their cumulative experience and growing selection of strategies continue to increase liquidity and flexibility in the option markets, which is beneficial for all of us. See Exhibit 1.3 for totals in annual options volume. It is also the reason why indicators such as the Chicago Board Options Exchange (CBOE) put-call ratio are becoming antiquated and obsolete. I discuss this later.

Don't be a sucker—learn as much as you can before taking big risks in the option markets.

### Smart Investor Tip!

The checklist is a major step in preventing mistakes and overlooking key information. It also helps with trade consistency and keeps scatterbrains like me focused.

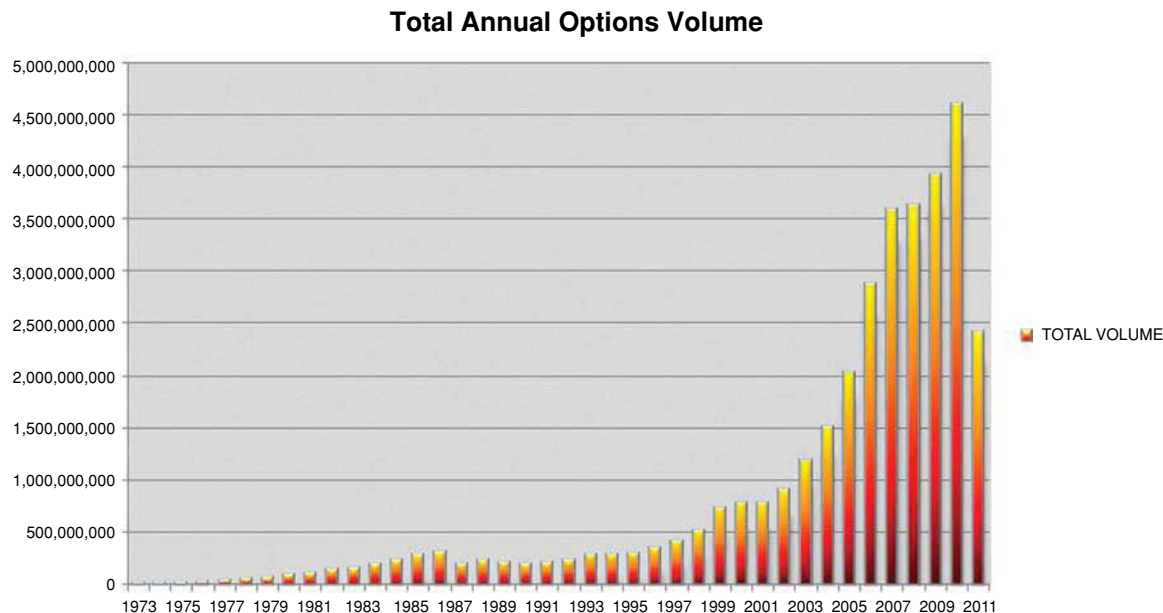


**Exhibit 1.2**

## The Basics

Thales of Miletus used options to lock in a low and set price for olive presses ahead of Greek harvests back in 600 BC. In the 1600s, the Dojima Rice exchange, which started on the front lawn of Yodoya Keian, arguably became the world's first futures exchange.

Even though options in some form or fashion have been around for thousands of years, the modern standardized world of options came about in 1973 when the Chicago Board of Trade (CBOT) gave birth to the CBOE. The CBOE became home to the first equity and index exchange in the United States.

**Exhibit 1.3**

This was about the time the Black-Scholes model was created as a means of calculating options prices using standardized, measurable, objective integers as opposed to random price quotes that often favored the dealer, not the customer.

Prior to that, the option market was fragmented and if you wanted to buy or sell an option, you went directly to a dealer as opposed to everyone meeting on the exchange to create the most efficient price. Because of this fragmentation, there were major price discrepancies.

You see, without a standard formula there was no accurate way to price an option anyway. It was simply a random price driven market, with little rationale as to the correct price to buy or sell.

When you think about it, the underlying asset has its own set of random forces pushing and pulling on the price. Quantifying and finding a price to buy or sell an asset is hard enough. For a derivative to have no structure, you simply end up magnifying variables and making things more complicated and random.

**KEY POINT:**

The underlying securities themselves can also be flawed; think back to the Credit Default Swap (CDS) or Mortgage Backed Securities (MBS) vehicles.

Dealers (called *Bucket Shops*) would publish static quotes with not only wide bid-ask spreads, but prices that sometimes made no sense compared with today's pricing systems and models. This is where volatility and time come into play, but back then it didn't matter because not many people understood this. These shops operated more like horse tracks than financial firms. The dealers had a good idea about what the options were really worth and would "handicap" the prices (odds) many times in their favor. Sure people won some money from time to time, but the dealers were in control.

Jesse Livermore (*Reminiscences of a Stock Operator*, 1923) made a killing with options because he had the uncommon knowledge about how to derive their value. Perhaps he had a knack for knowing which way the market was moving, too, because the Bucket Shops banned him when he won so much money; he was certainly the exception.

Exhibit 1.4 shows the early twentieth century, which was no doubt the dark ages of the option markets.

But even in the early 1970s, trading and quote technology was still in its infancy. Quotes for options and commodity prices were updates on chalkboards such as the one you see in Exhibit 1.5 in 1971 at the CBOT.

Option prices were still slow to update and the markets were wide and illiquid in many cases.

Fast-forward 40 years and the technology has advanced by an order of magnitude that even Gordon E. Moore could have never imagined. The advantage now lies in knowing behavior and strategy, and having the

ability to analyze and execute quickly and efficiently. These tools are at *everyone's* disposal.

These strengths can lie in the hands of anyone working from just about anywhere in the world. As a "market taker" (which is what most of you are) you may not get certain small perks that a "market maker" (MM) gets in terms of leverage and rebates on short stock positions, but you are at parity, if not advantaged in comparison. Trust me. (I will explain why, showing how being an MM can leave you exposed to smart money.)

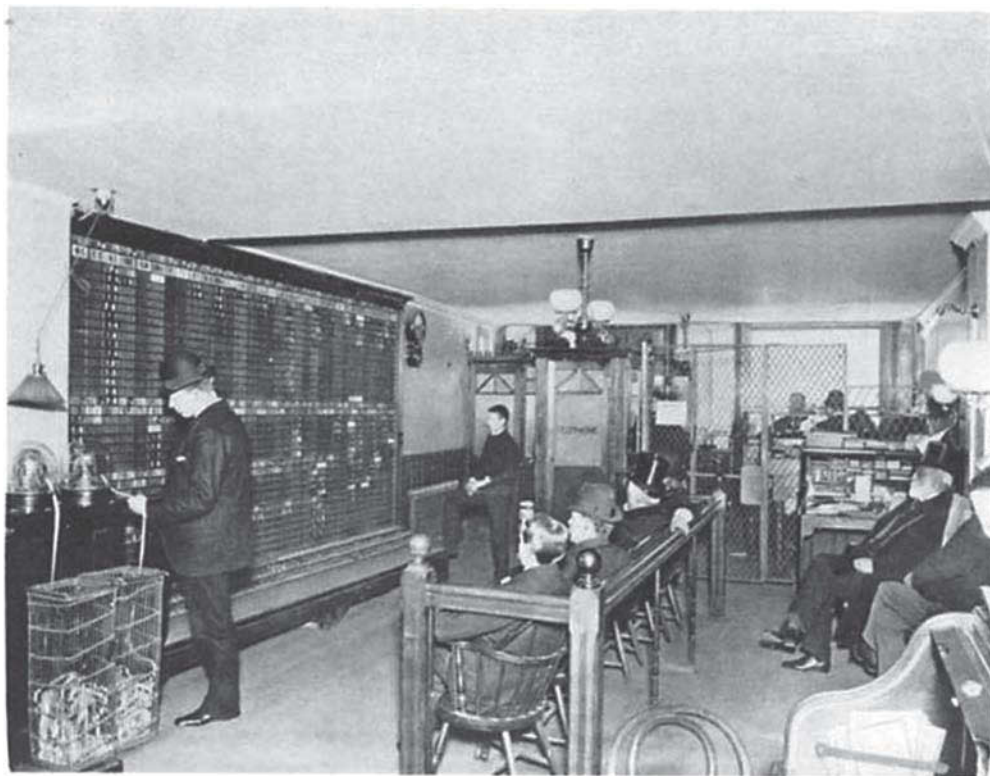
## Routing and Handling of Orders

Because options are traded separately from their underliers, there is no need to have both the stock and option trade at the same place or even on the same exchange. Like stocks, options trade on several exchanges, which are somewhat linked together when it comes to disseminating prices.

This can be good and bad when it comes to getting executions in the options that you trade.

One detriment is that exchanges do *not* share orders with one another! If you send an order to buy calls on the Philadelphia Stock Exchange (PHLX) they are not going to be filled at the International Stock Exchange (ISE) unless PHLX sends the order away. The exchanges do, however, have rules that help ensure the best pricing for the customer. If one exchange is priced better than another, the exchange with the order needs to either fill it at the better price or send it away! See Exhibit 1.6.





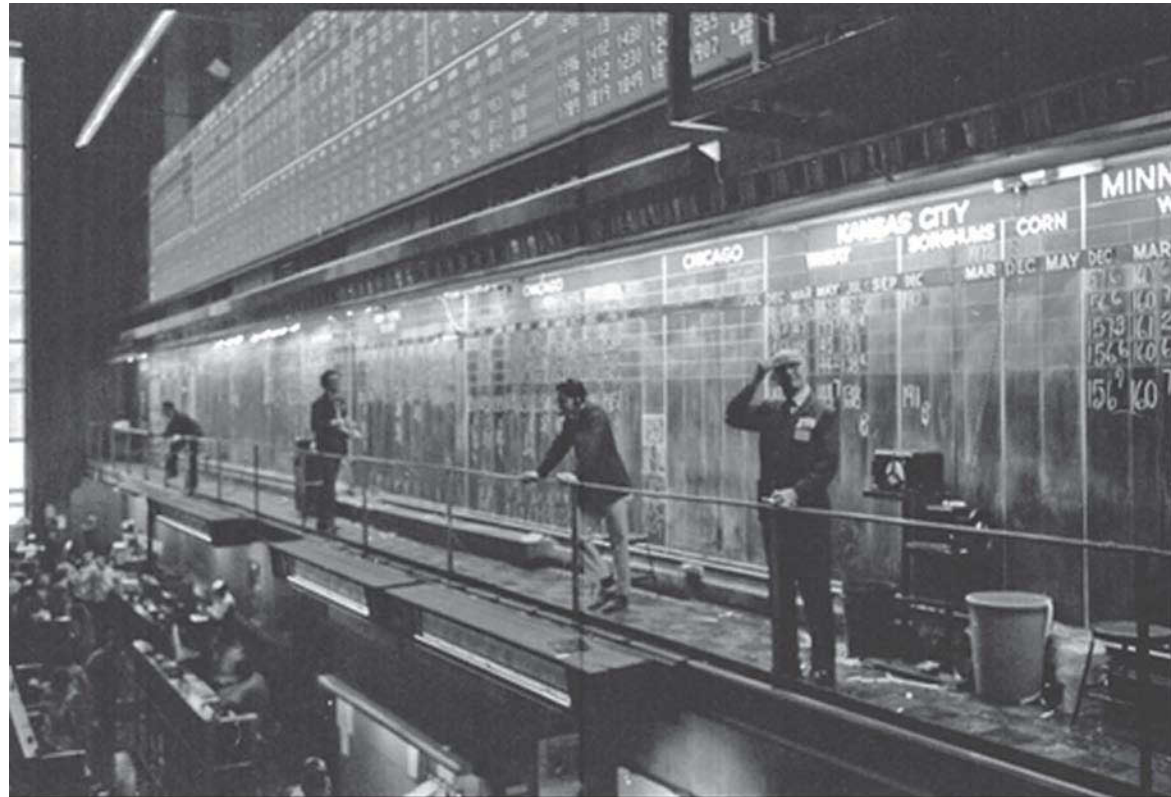
CLEMENT, PARKER &amp; COMPANY.

### Exhibit 1.4

One of the biggest “problems” with completely electronic exchanges is the handling of spread orders. When you send a two-, three-, four- or more legged spread to a certain exchange, it may not be represented in the best way possible to market participants as it would be in a physical crowd.

Exchanges like the ISE disseminate data as quickly as possible and market makers use different types of software interfaces to see and trade on that data.

In other words, if you are trying to buy an iron condor that has a market of \$1 to \$2 and you are bidding



**Exhibit 1.5**

*Source: Pat Arnow Photography, arnow.org.*

\$1.80, your order may not be filled, even though it should be. Sometimes you may even bid the full \$2 and not see your order filled on the spot, because of the varying prices of each individual option and the way the orders are presented to market makers. In theory,

as technology improves so does execution speed and efficiency, but highly efficient markets also mean that the market makers are less willing to make errors themselves or stick their necks out just to get an order completed. So be wary when using AON (all or none)

**C**

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295) Center Strike 296) Calls/Puts 297) Calls 298) Puts 299) Term Structure

Calls						Puts					
Ticker	Bid	Ask	Last	IVM	DM	Ticker	Bid	Ask	Last	IVM	DM
1) IBM 7/21/12 C195	3.80	3.90	3.94	19.66	.52	1) IBM 7/21/12 P195	3.45	3.50	3.50	19.42	-
2) - IBM 7/21/12 C195 (A)	3.80	3.90	3.80	19.66	.52	2) - IBM 7/21/12 P195 (A)	3.45	3.55	3.55	19.51	-
3) - IBM 7/21/12 C195 (B)	3.80	3.95	3.60	19.80	.52	3) - IBM 7/21/12 P195 (B)	3.45	3.60	3.70	19.64	-
4) - IBM 7/21/12 C195 (I)	3.80	3.90	3.70	19.66	.52	4) - IBM 7/21/12 P195 (I)	3.45	3.55	3.45	19.51	-
5) - IBM 7/21/12 C195 (O)	3.80	3.90	3.90	19.66	.52	5) - IBM 7/21/12 P195 (O)	3.45	3.55	3.38	19.51	-
6) - IBM 7/21/12 C195 (P)	3.80	3.90	3.90	19.66	.52	6) - IBM 7/21/12 P195 (P)	3.45	3.55	3.45	19.51	-
7) - IBM 7/21/12 C195 (Q)	3.80	3.90	3.85	19.66	.52	7) - IBM 7/21/12 P195 (Q)	3.45	3.50	3.50	19.42	-
8) - IBM 7/21/12 C195 (W)	3.80	3.90	3.94	19.66	.52	8) - IBM 7/21/12 P195 (W)	3.45	3.55	3.90	19.51	-
9) - IBM 7/21/12 C195 (X)	3.80	3.95	3.80	19.85	.52	9) - IBM 7/21/12 P195 (X)	3.45	3.55	3.60	19.51	-
10) - IBM 7/21/12 C195 (Z)	3.80	3.90	2.80	19.66	.52	10) - IBM 7/21/12 P195 (Z)	3.40	3.55	3.55	19.42	-
11) IBM 8/18/12 C185	12.20	12.40	12.15	21.16	.78	11) IBM 8/18/12 P185	2.32	2.35	2.31	21.30	-
12) IBM 8/18/12 C190	8.40	8.50	8.50	19.64	.67	12) IBM 8/18/12 P190	3.50	3.60	3.55	19.65	-
13) IBM 8/18/12 C195	5.15	5.25	5.30	18.17	.52	13) IBM 8/18/12 P195	5.40	5.50	5.33	18.20	-
14) IBM 8/18/12 C200	2.79	2.81	2.86	17.03	.36	14) IBM 8/18/12 P200	8.10	8.20	8.00	16.99	-
15) IBM 8/18/12 C205	1.29	1.33	1.32	16.27	.21	15) IBM 8/18/12 P205	11.60	11.75	12.10	15.97	-
16) IBM 10/20/12 C185	14.60	14.80	14.55	21.38	.69	16) IBM 10/20/12 P185	4.90	5.05	5.15	21.53	-

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The Level 2 screen for IBM shows the different exchanges' bids and offers for each option represented by different letters (in parentheses).

**Exhibit 1.6**

orders or if you need to get into or out of a position in between the markets. There is nothing worse than a partial fill where you tried to save a couple of pennies, but end up losing thousands. It has happened to me many times, trust me.

When it comes to executing spreads effectively, there are three things you need:

1. An understanding of the theoretical value and risk of the options themselves.

In the early days, IBM would have had its options listed on only one exchange. Since one exchange controlled all the order flow and, in some respects, implied volatility and pricing, it could easily alter pricing by making adjustments to this model.

1) Actions ▾										2) Strategies ▾										3) Str. Notes ▾										4) Data & Settings ▾										5) Help ▾										Option Valuation																																																	
84 FI Leg ▾										85 Solve For ▾										86 Refresh										7) Add to Portfolio										87 Matrix Pricing										89 Trade ▾																																																	
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Price										195.37										USD										Settle										06/29/12																																																											
Net Option Values																																																																																																			
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Price (Share)										11.3816										Delta (%)										82.97										Theta										-6.63										Gearing										17.17																													
Price (%)										5.8257										Gamma (%)										4.2583										Rho										6.68										Break-Even (%)										0.52																													
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7) Option Pricing										8) Scenario Graph										9) Scenario Table										10) Volatility Data																																																																					

**Exhibit 1.7**

2. The ability to watch the underlying instrument's price change.
3. An understanding of how various changes in market conditions are affecting your spread's value (skew, option pricing model, etc.).

These three things are an integral part of being an effective order execution trader. It can also save you money and reduce risk. See Exhibit 1.7.

At the end of the twentieth century, the options markets began to change again with the introduction of multiple listings, where a company's options were now listed on more than one exchange. This enabled investors to trade options just about anywhere they wanted. But more important, this created competition among exchanges to earn business through cheaper transaction prices and tighter bid-ask spreads.



Initially, it was a war over technology and liquidity—who could provide the fastest, most liquid markets with the best price. Exchanges were sometimes paying to have orders routed through their systems. Even today, there are still multiple exchanges trading and flourishing, although many exchanges have either closed for good or have changed the way they conduct business to keep up with the times. There are currently eight exchanges where options can be traded, all of which are fighting for your business. The days of the pit trader (my former profession) are numbered, if not already gone entirely.

Higher volume and concentrated order flow naturally improves prices, so I would expect further consolidation within the exchanges to the extent that the Securities and Exchange Commission (SEC) and other regulatory bodies will allow.

## The Options Exchanges

There are agreements that some brokers have with certain exchanges to send them order flow, which may or may not be to your advantage. There is little you need to do as a retail trader to most efficiently execute your orders. As a professional, you may develop relationships with certain exchanges or even specialists to get your orders executed efficiently and at the best price.

Bloomberg has a platform (as do some brokers) that allows you to “shop” off floor liquidity providers for options and spreads if you trade in size. This may help you to execute large trades at one price.

### List of Exchanges and Their Acronyms

AMEX	American Stock Exchange, housed on the NYSE
BOX	Boston Stock Exchange
CBOE	Chicago Board Options Exchange
ISE	International Stock Exchange
BATS	BATS Exchange founded in June 2005 as an ECN (electronic communication network)
PCST	Pacific Coast Stock Exchange, absorbed by NYSE (see Exhibit 1.8)
PHLX	Philadelphia Stock Exchange, part of Nasdaq OMX
NASDAQ OMX	Nasdaq Options Market

Each of the exchanges disseminates quotes dynamically throughout the day, which are determined both electronically and via open outcry.

Note that some exchanges may have higher bids or lower offers with more or less size (number of contracts). This means that they may be better buyers or sellers at any given moment or that you are seeing standing customer limit orders. This again may also be related to different market maker positions. If the bid or offer size tends to follow the price, it's most likely a market maker leaning one way or the other. If the size of the market doesn't move when the price moves, you may have a standing order on the specialist's books.

### Smart Investor Tip!

As a general rule, your broker will typically route your order to the best-priced exchange, or that exchange will match the best price.

Ticker	Bid	Ask	Last	IVM	DM
1) IBM 7/21/12 C195	3.80	3.90	3.94	19.66	.52
2) - IBM 7/21/12 C195 (A)	3.80	3.90	3.80	19.66	.52
3) - IBM 7/21/12 C195 (B)	3.80	3.95	3.60	19.66	.52
4) - IBM 7/21/12 C195 (I)	3.80	3.90	3.70	19.66	.52
5) - IBM 7/21/12 C195 (O)	3.80	3.90	3.90	19.66	.52
6) - IBM 7/21/12 C195 (P)	3.80	3.90	3.90	19.66	.52
7) - IBM 7/21/12 C195 (Q)	3.80	3.90	3.85	19.66	.52
8) - IBM 7/21/12 C195 (W)	3.80	3.90	3.94	19.66	.52
9) - IBM 7/21/12 C195 (X)	3.80	3.95	3.80	19.85	.52
10) - IBM 7/21/12 C195 (Z)	3.80	3.90	2.80	19.66	.52

If you were to notice that the PHLX is a better seller of a group of calls when compared to theoretical value, it might be an indication that the market makers have an overly long position or a bearish bias. Here they are all lined up nicely.

Exhibit 1.8

**KEY POINT:**

While the option is trading, you have the right to buy or sell it as long as you have the money.

**DEFINITION:****Standardized**

Standardized means that the trading rules and strike prices are guaranteed by the Options Clearing Corporation ([www.occ.com](http://www.occ.com)).

A stock that trades more than 1 million shares a day on average and is a member of the S&P 500 will generally have ample liquidity for you to get into and out of positions up to 50 contracts fairly easily. But there are still many thinly traded securities that you will struggle with to get executed. If you notice bid-ask spreads of \$1 or more on a stock that is \$50 or less and the stock has volume less than 750,000 shares traded on average a day, it might be best to avoid that all together. See Exhibit 1.9.

**Standardized**

Listed options contracts are **standardized**. If you are buying or selling an option, the Options Clearing Cor-

poration ensures that your counterparty will perform its obligations.

The OCC, along with clearinghouses like Goldman Sachs and even the Chicago Mercantile Exchange (which is both an exchange and a clearinghouse), reduce counterparty risk in options trading.

So if you buy a call and the stock goes up \$100, that contract will still be good for sale even though the seller who originally did the trade with you may be in some serious financial pain. Understand that you will seldom be buying an option from and selling it back to the same person; the fluid markets move money around quite efficiently.